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ABSTRACT

The mathematics curriculum guide stresses the development of desired pupil behaviors in handicapped elementary school children through an individualized clinical teaching approach. The curriculum emphasizes behaviorally specified and measurable mathematics objectives found to be necessary for success in regular educational programs. The guide is explained to be currently used by clinical teacher trainees during field practicum and internship experiences. Presented in flow chart form are the conceptual and instructional models for the following mathematical ideas or operations (module clusters): basic properties of sets, numeration, addition, subtraction, multiplication, division, and fractions. The curriculum is organized by competency (such as basic operations), module cluster (such as subtraction), and module (such as regrouping for subtraction). Given for each module are purpose, behavioral objectives, techniques of instructional implementation, and sample test items. The final section provides competency tests for each of the module clusters. (DB)

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CLINICAL TEACHER DESIRED PUPIL BEHAVIORS: AN INDIVIDUALIZED MATHEMATICS CURRICULUM

Fall, 1973
The Florida State University

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and

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Interrelated Areas of Special Education

Fall, 1973
The Florida State University

A PUBLICATION OF THE CLINICAL TEACHER MODEL SPECIAL PROJECT CONDUCTED BY THE FLORIDA STATE UNIVERSITY, COLLEGE OF EDUCATION, EDUCATIONAL RESEARCH INSTITUTE, PROFESSIONAL AND CLINICAL PROGRAMS, EDUCATION FOR SPECIAL NEEDS, AND SUPPORTED BY A GRANT FROM THE U.S. OFFICE OF EDUCATION, BUREAU OF EDUCATION FOR THE HANDICAPPED, DIVISION OF TRAINING PROGRAMS

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Preface

This INDIVIDUALIZED MATHEMATICS CURRICULUM is a part of a series of publications of the Clinical Teacher Model of Interrelated Areas of Special Education at the Florida State University. The behaviorally specified and measurable mathematics objectives for exceptional pupils are some of the common behaviors necessary for succeeding in the mainstream of regular education. Clinical Teacher Trainees, using this curriculum during their field practicum and internship, demonstrate their generic competencies of diagnosis and intervention.

The prototype model was conceptualized during the summer of 1972, by Robert Barrios, John Kelly, and William Travers when they were Clinical Teacher Trainees. This curriculum was subsequently designed by the authors during the spring and summer of 1973. Initial field trials will be conducted during the 1973-74 academic year with projected revisions and additions scheduled for the summer of 1974.

Louis Schwartz and Andrew Oseroff
Tallahassee, Florida

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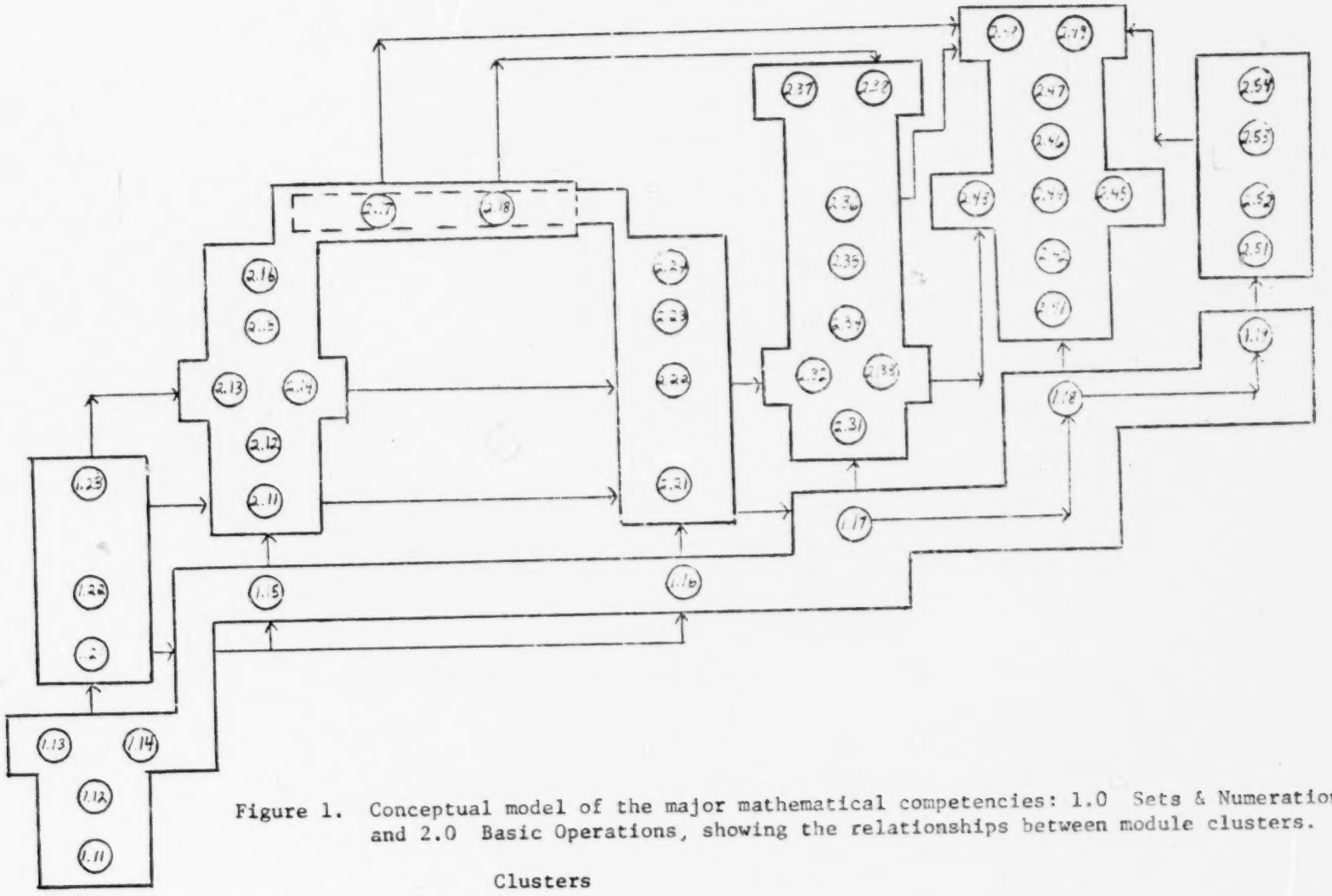


Figure 1. Conceptual model of the major mathematical competencies: 1.0 Sets & Numeration and 2.0 Basic Operations, showing the relationships between module clusters.

Clusters

1.1	Sets	2.1	Addition	2.3	Multiplication	2.5	Fractions
1.2	Numeration	2.2	Subtraction	2.4	Division		

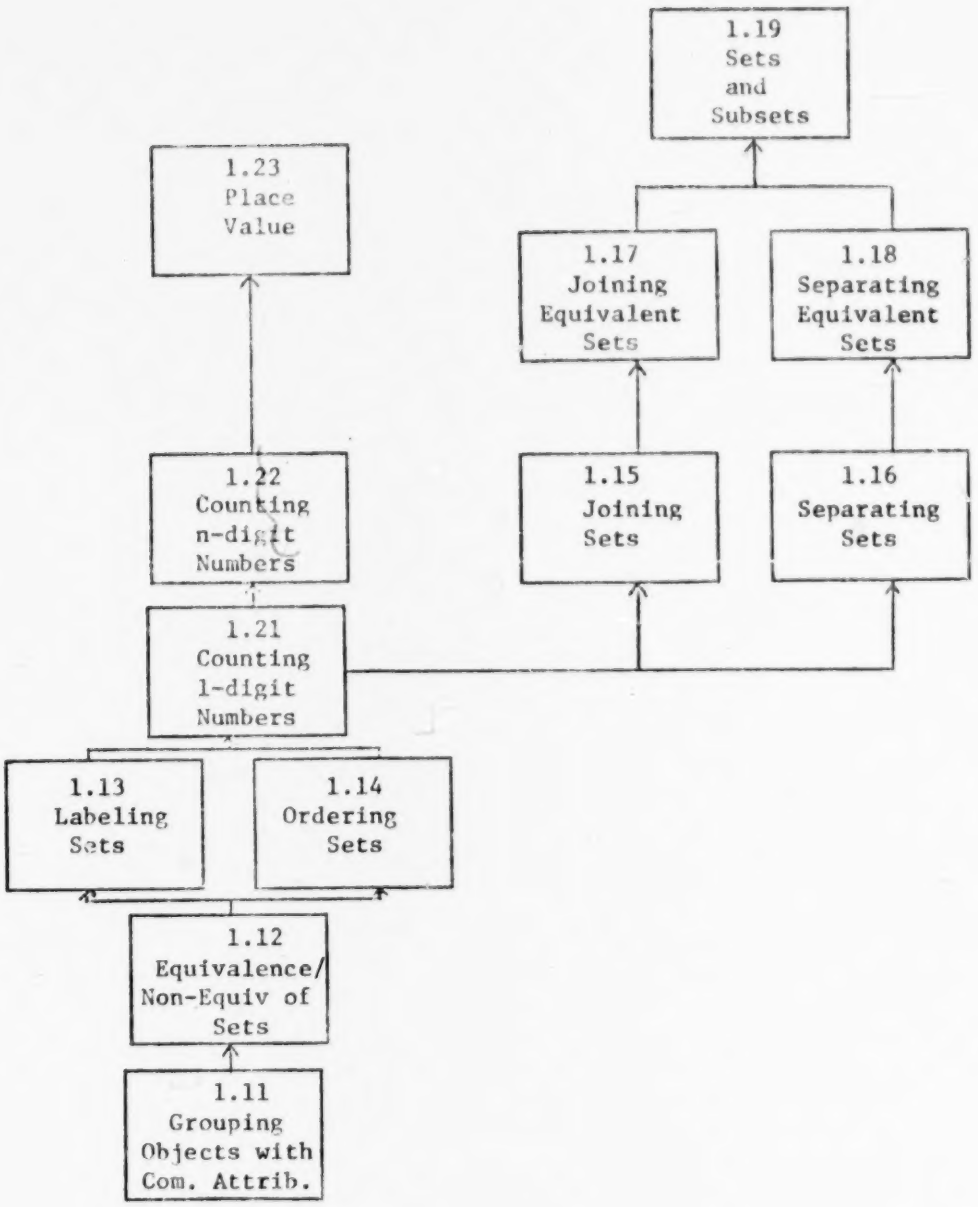


Figure 2. Sets and Numeration:

1.1 Sets
1.2 Numeration

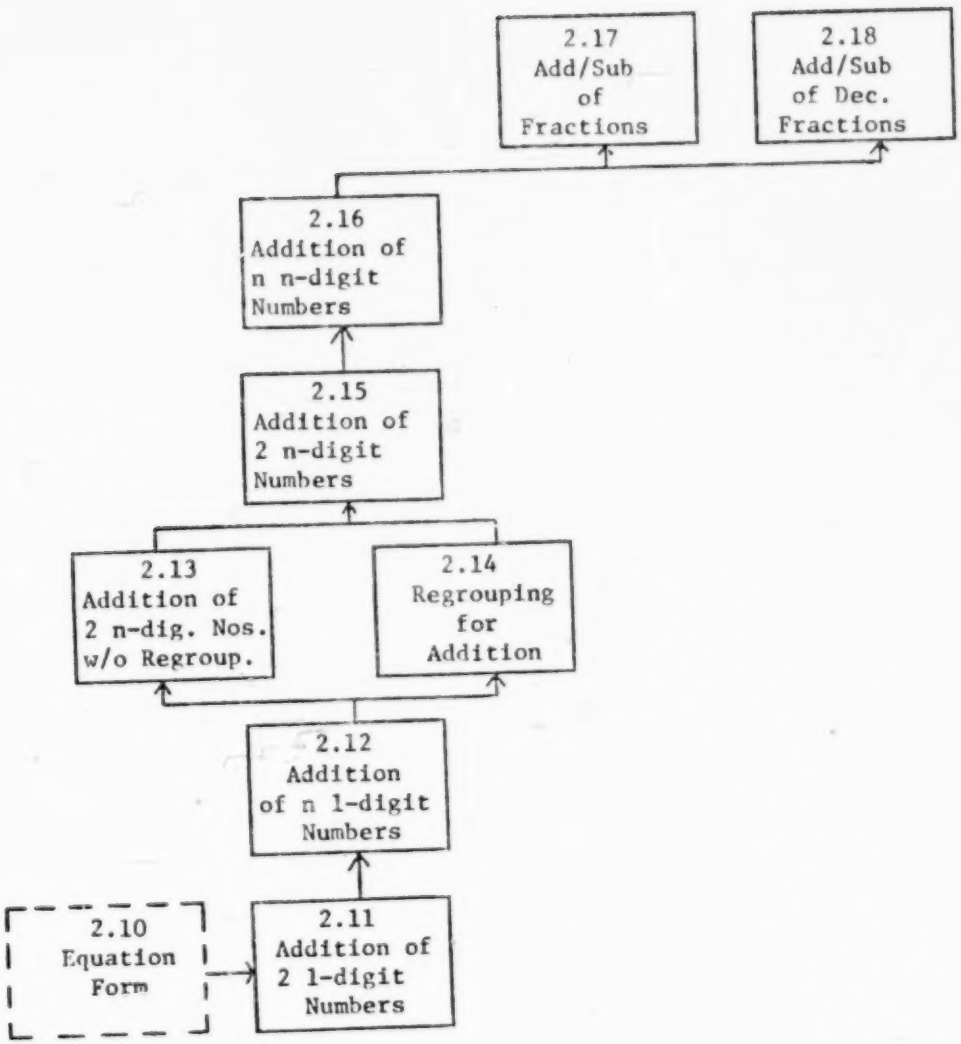


Figure 3. Basic Operations:

2.1 Addition

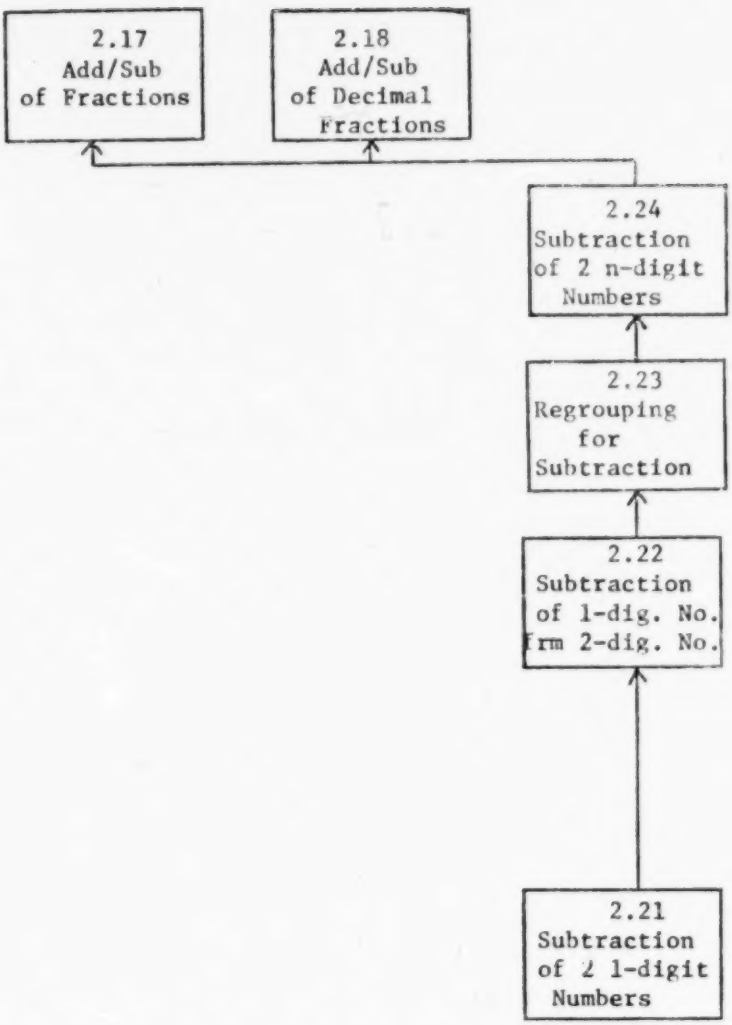


Figure 4. Basic Operations

2.2 Subtraction

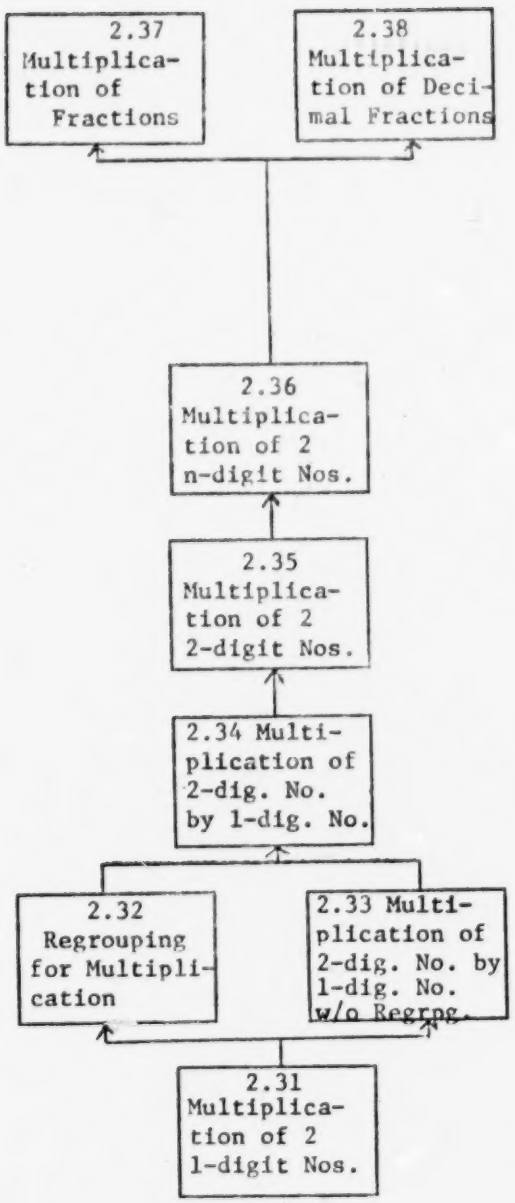

2.37 Multiplication of Fractions
2.38 Multiplication of Decimal Fractions
2.36 Multiplication of 2 n-digit Nos.
2.35 Multiplication of 2 2-digit Nos.
2.34 Multiplication of 2-dig. No. by 1-dig. No.
2.32 Regrouping for Multiplication
2.33 Multiplication of 2-dig. No. by 1-dig. No. w/o Regrpg.
2.31 Multiplication of 2 1-digit Nos.

Figure 3. Basic Operations:

2.3 Multiplication

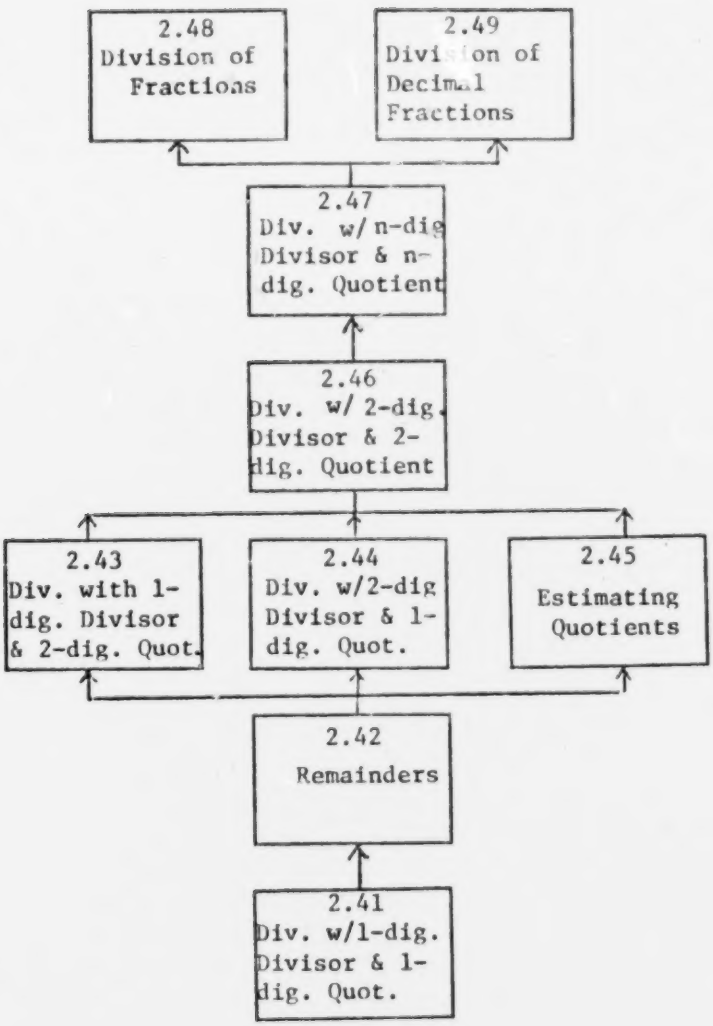


Figure 6. Basic Operations:

2.4 Division

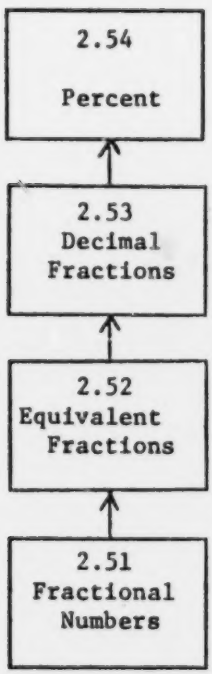


Figure 7. Basic Operations:

2.5 Fractions

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Basic Properties of Sets

1.11 Module: Grouping Objects with Common Attributes

I. PURPOSE: To provide the student with the skills for grouping objects with common attributes.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Sorting Common Objects: The student will place similar objects into a set.

2. Identifying Common Attributes: The student will verbalize the common attribute.

3. Identifying Sets: The student will place similar objects into a set and verbalize the common attribute.

B. Context:

1. Sorting Common Objects: The student will be provided with similar and dissimilar objects and told what attributes the similar objects have in common.

2. Identifying Common Attributes: The student will be provided with a set of similar objects.

3. Identifying Sets: The student will be provided with several dissimilar and similar objects.

C. Criteria:

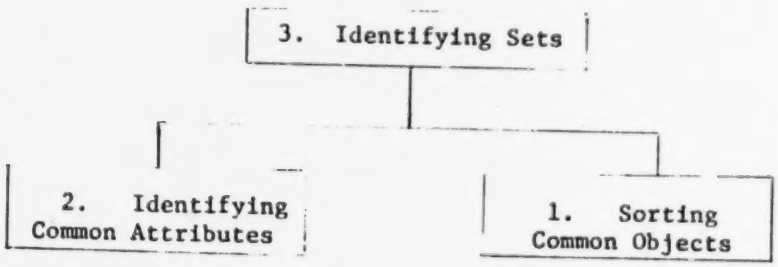
1. Sorting Common Objects: Teacher Judgment

2. Identifying Common Attributes: Teacher Judgment

3. Identifying Sets: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Sorting Common Objects:
   Concept: Alike
   Together
   Pre-Reading: 1.5 Visual Discrimination

2. Identifying Common Attributes:
   Concept: Alike
   Pre-Reading: 1.5 Visual Discrimination

3. Identifying Sets:
   Mathematics: 1.11 Grouping Objects with Common Attributes, Objectives 1. and 2.

C. Instructional Resources/Options/Activities:

1. Sorting Common Objects: WJ: Color Sort, p. 102
   SRA 1:3 (t-5, Act. 5) The Button Game, p. 104

2. Identifying Common Attributes: WJ: Classification, p. 106
   MSM K: (t-104) The Food Game, p. 68
   MES 1:9
   RMSM 1:5,6 (t-40,41)
   SRA 1: (t-2, Act. 2); 2(t-4, Act. 4); 3(t-5, Act. 5)
   Objects

3. Identifying Sets:
   RMSM 1:5,6 (t-40-1)
   S & N 1: (t-1,2)
   SRA 1: (t-1,2, Acts. 1,2); (t-3, Act. 3);
   2: (t-4, Act. 4);
   3: (t-5, Act. 5); (t-6, Act. 6)

IV SAMPLE TEST ITEMS:

1. Sorting Common Objects:
   Present the student with a group of objects which have similar and dissimilar characteristics. (For example: 3 red crayons, 1 blue, and 1 yellow; or 3 triangles, 2 squares and a diamond, etc.). Ask the student to "put together," or to group, all of those objects which are in common. ("Give me all of the red crayons ...," "Put all of the squares together ...").

2. Identifying Common Attributes:
   Present the student with several similar objects. (For example: 5 toy cars, 6 red marbles, etc.). Ask the student to tell why all of the objects are grouped together, and why they are alike.

3. Identifying Sets:
   Present the student with 5 similar and dissimilar objects (which have not previously been presented). (For example: 3 red blocks, a blue block and a green block; 3 cars, a pencil and a piece of candy, etc.). Have the student group those objects with common attributes and ask him to give his reason for placing them in the particular set.

   Note: Depending on the needs of the individual student, the above objectives can rely on either or both manipulative objects (three dimensional) as mentioned above, or two dimensional (pictures) as illustrated in the resource options.

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.12 Module: Equivalence/Non-Equivalence of Sets

I. PURPOSE: This module will provide the student with the skills for determining equivalence/non-equivalence of sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Matching Equivalent Sets: The student will match sets by drawing lines from the members of a given set to the member of another set or by placing corresponding elements opposite each other.

2. Matching Non-Equivalent Sets: The student will match sets by drawing lines from the members of a given set to the members of another set or by placing corresponding elements opposite each other, and verbalize which set has more elements and which set has less elements.

3. Determining Equivalence/Non-Equivalence of Sets: The student will verbalize whether the number of elements in given sets are the same as, less than, or more than the number of elements in another set (without drawing lines for matching).

B. Context:

1. Matching Equivalent Sets: The student will be provided with two equivalent sets.

2. Matching Non-Equivalent Sets: The student will be provided with two non-equivalent sets.

3. Determining Equivalence/Non-Equivalence of Sets: The student will be provided with 4 sets, two of which are equivalent (n) and two of which are non-equivalent(n + 1, n - 1).

C. Criteria:

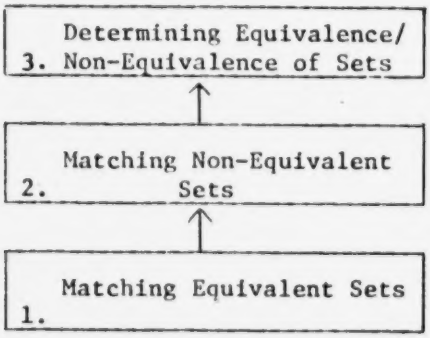
1. Matching Equivalent Sets: Teacher Judgment

2. Matching Non-Equivalent Sets: Teacher Judgment

3. Determining Equivalence/Non-Equivalence of Sets. Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Matching Equivalent Sets:
Grouping Objects with Common Attributes
Concept of "Same" (PRE 1.13), Workjobs: Same - Difference Game p. 82, Weight Boxes p. 88, Matching (PRE 1.81)

2. Matching Non-Equivalent Sets:
Objective # 1
Concept of "more" and "less."

3. Determining Equivalence/Non-Equivalence of Sets:
Objective # 2.

4. Workjobs: "The Outline Game" p. 50.

C. Instructional Resources/Options/Activities:

1. Matching Equivalent Sets:
MSM K: 33-35; 1: 5-8
RMSM 1: 7-10 (t-42-45)
EM 1: 4,5 ; EM 2:5
MES 1: 13-20
ESM 1: 3-7 (t-17-18); 2: 1 (t-15)
S & N 1: (t-12 for one-to-one); 20 - 1 (t-22-3); 28 (t-28); 29 (t-29)

"Workjobs," HookBoard, p. 34
The Outline Game, p. 50
The Number Cars, p. 150 (with modification)
The Nailboard, p. 170;
SRA 1: (t-6, Act. 1); (t-7, Act. 3); (t-7, Act. 4);
4:(t-8, Act. 5); 6:(t-10, Act. 7).

2. Matching Non-Equivalent Sets:
MSM K: 36-38; 40-41,82; 1: 9,41-42
RMSM 1: 11-12(t-46-7)
EM 1: 6-7; 2:4
MES 1: 21-27
ESM 1:(t-15); 9-12(t-21-22); 13(t-24)
SRA 1: (t-6,7); 4(t-8, Act. 5); 5-6(t-9-10, Acts.' 6-7)

3. Determining Equivalence/Non-Equivalence of Sets:
MSM K: 43,44
MES 1: 32-34
SRA 1: 4(t-8, Act. 5)

IV. SAMPLE TEST ITEMS:

1. Matching Equivalent Sets: Present the student with two sets of objects. Both sets should be equivalent. The student should match each element in one set with a corresponding element in the other set. (He can do this by placing each object opposite a corresponding object in the other sets). He should then verbalize that the sets have the same number of elements - for example, "Every block in this group goes with every triangle in that group."

2. Matching Non-Equivalent Sets: Present the student with two sets of objects. Ask him to match them and tell you whether or not each element in one set matches up with an element in the other. If he says that they do not, ask him to mark in some way the set with the most, or the set with the fewest elements. (Example: present him with 2 sets of blocks, one set having 4 blocks and one having 3. The student will then match them by placing the corresponding elements opposite one another and then state a) that the sets are not the same and b) will then point to the set with the most and/or the fewest elements.)

3. Determining Equivalence/Non-Equivalence of Sets: Present the student with three different situations where each time he is presented with two sets of objects. Ask him to determine (by looking and comparing visually, but without actual manipulation of the objects) whether the elements in one set are "the same as," "less than," or "more than" the elements in the other set. (For example: present the student with two sets of cars where each set contains 5 members. He should respond "the same as." When confronted with 5 cars in one set and 4 cars in another, he should either say "more" or "less" in accordance with the question.

Note: Depending on individual student needs, the above objectives may either rely on manipulative 3-d objects as mentioned above, or 2-d pictures as illustrated in the resource options.

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.13 Module: Labeling Sets

I. PURPOSE: To provide the student with the skills for labeling sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Naming the Numeral: The student will verbalize the name of the numeral.

2. Naming the Set: The student will verbalize the name of the numeral which corresponds to the elements in a set.

3. Writing the corresponding numeral: The student will write the numeral which corresponds to the elements in a set.

B. Context:

1. Naming the Numeral: The student will be provided with the visual stimulus of a numeral from 0 - 9.

2. Naming the Set: The student will be provided with a set of objects whose members number from 0 - 9.

3. Writing the Corresponding Numeral: The student will be provided with a set of objects whose members number from 0 - 9.

C. Criteria:

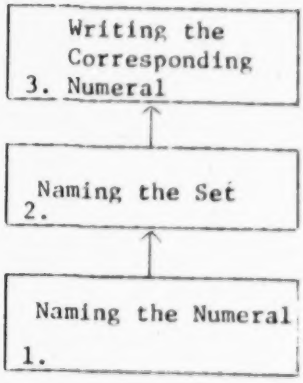
1. Naming the Numeral: Teacher Judgment

2. Naming the Set: Teacher Judgment

3. Writing the Corresponding Numeral: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Naming the Numeral:
   Visual Memory of Numbers
   Auditory Memory of Numbers
   Recognition of the Numeral

2. Naming the Set:
   Equivalence/Non-Equivalence
   Objective # 1
   Recognition of the set

3. Writing the Corresponding Numeral:
   Objective # 2
   Visual Motor Coordination

C. Instructional Resources/Options/Activities:

1. Naming the Numeral:
   S & N 1: 11-15(t-15-18); 24(t-26); 25(t-27)
   SRA 1: 15-18(t-29-39, Acts. 3-7); 15(t-39, Act. 15);
   (t-70, Act. 1); (t-71, Acts. 2-4)
   Workjobs, Flannelboard Groups, p. 144

2. Naming the Set:
   MSM K: 45, 68-71, 73-75, 77-79
   MSM 1: 11-35
   ESM 1:20-7(t-28-34), 29(t-36),30-33(t-34-38),35(t-39),
   39-40(t-42), 41-2(t-43), 47-8(t-48)
   S & N 1: 11-15 (t-15-18), 18(t-20),24-5(t-26-7),34(t-34),
   35(t-35)
   SRA 1:15-18(t-29-32,Acts. 3-7), 26(t-40, Act. 17),
   (t-70, Act. 1), (t-71, Acts. 2-4)
   Workjobs: Flannelboard Groups, p. 144; Select-a-Set, p. 152;
   Cereal Game, p. 154; The Odd Ball, p. 158;
   Piggy Banks, p. 160

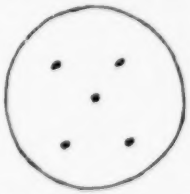
3. Writing the Corresponding Numeral:
MSM K: 84
MSM 1: 11-36, 38-40, 47-49
EM 2: 5
MES 1: 57-60
RMSM 1: 19-20(t-54-55), 23-5(t-58-61), 28-30(t-63), 32(t-71), 34(t-73), 36(t-75), 38(t-77), 46(t-85), 49-50(t-88-9)
ESM 1: 43-44(t-46), 47-51(t-48-50)
ESM 2: 4(t-17)
S & N 1: 22(t-24), 23(t-25), 24-5(t-26-7), 35(t-35), 38(t-36), 39(t-37), 37(t-36), 52(t-46)
SRA 1: 51-6(t-73-77, Acts. 7-11), 60(t-80, Act. 15), 27(t-41, Act. 18), 57-9(t-78-80, Acts. 12-14)

IV. SAMPLE TEST ITEMS:

1. Naming the Numeral: Present the student with flashcards of the numerals 0 - 9. Upon presentation of a card, the student will verbalize the name of the numeral.

2. Naming the Set: Present the student with different sets of objects, 0 - 9, (in either picture form or 3-d objects). The student will verbalize the corresponding numeral for the number of elements in the set.

Example:



Teacher: "How many dots in this set?"
Student: "Five."

3. Writing the Corresponding Numeral: Present the student with 10 different situations in random order where each time he is given a different set of objects with from 0 - 9 elements. Ask the student to write the corresponding numeral for each respective set. (This may be done with either pictures or objects, depending on the needs of the individual child.)

1.0 **Competency:** Mathematics - Sets and Numeration

1.1 **Module Cluster:** Sets

1.14 **Module:** Ordering Sets

I. PURPOSE: To provide the student with the skills for ordering sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Between: The student will point to the set which is in between the two other sets (n).

2. One More - After: The student will point to the set which has "one more" member, and verbalize that this set comes "after" (n + 1).

3. One Less - Before: The student will point to the set which has "one less" member, and verbalize that this set comes "before" (n - 1).

4. Ordering Sets: The student will point to and verbalize the set which comes before n, the set which comes after n, and that set which is between n + 1 and n - 1.

B. Context:

1. Between: The student will be provided with 3 sets: (n, n + 1, n - 1).

2. One More - After: The student will be provided with 3 sets: (n, n + 1, n - 1).

3. One Less - Before: The student will be provided with 3 sets: (n, n + 1, n - 1).

4. Ordering Sets: The student will be provided with 3 sets: (n, n + 1, n - 1).

C. Criteria:

1. Between: Teacher Judgment

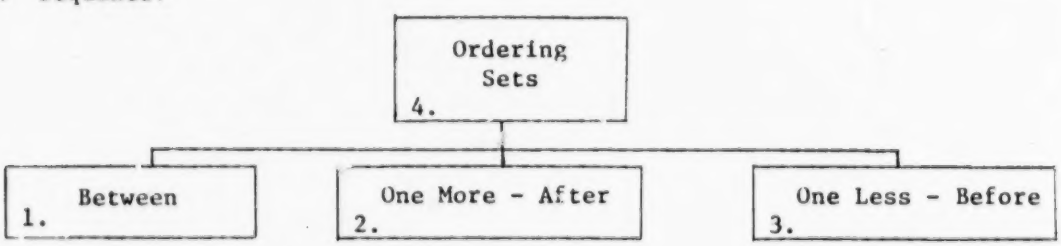
2. One More - After: Teacher Judgment

3. One Less - Before: Teacher Judgment

4. Ordering Sets: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Between:
Equivalence/Non-Equivalence
Discrimination of Position
Concept of One
Concept of Between

2. One More - After:
Equivalence/Non-Equivalence
Discrimination of Position
Concept of One
Concept of After

3. One Less - Before:
Equivalence/Non-Equivalence
Discrimination of Position
Concept of One
Concept of Before

4. Ordering Sets:
Objectives # 1, 2, 3

C. Instructional Resources/Options/Activities:

1. Between:
   Objects - Beads
   SRA 1: (t-11,12), (t-13, Act. 2)

2. One More - After:
   Objects - Beads
   RMSM 1: 43-4(t-82-83)
   SRA 1: (t-11,12), (t-13, Act. 2), 12(t-20, Act. 10).

3. One Less - Before:
   Objects - Beads
   RMSM 1: 26-7(t-61-62)
   S & N 1: 50(t-44)
   SRA 1: (t-11,12), (t-13, Act. 2)

4. Ordering Sets:
   MSM K: 63-65(t-170,172,174)
   MSM 1: 46-49 (t-64-68)
   EM 1: 8
   MES 1: 49-54
   WJ, p. 176; 182-190; 214; 216

IV. SAMPLE TEST ITEMS:

1. Between: Present the student with 3 sets placed in a row. Ask him to point to the set which comes between the other two.
   Example: "Point to the set which comes between."

2. One More - After: Present the student with 2 non-equivalent sets: Example: 4 apples and 3 oranges. Ask the student to point to the set with "one more" and verbalize whether it comes "before" or "after."

3. One Less - Before: Present the student with a group of objects or a picture with objects in it. Example: One set of 4 cars and one set of 5 beads. Ask him to point to the set which has the least number of elements, i.e., the set which comes "before."

4. Ordering Sets: Present the student with 3 sets in which one set comes before, one set comes between, and one set comes after. Example: 5 cars, 6 airplanes, 7 trucks. Ask the student to point to and verbalize the order of the vehicles as to which comes "before," "between," and "after."

Note: Depending on the needs of the individual student, the above objectives may utilize pictures and/or manipulative objects.

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.15 Module: Joining Sets

I. PURPOSE: To provide the student with the skills for joining sets.

II. BEHAVIORAL OBSERVATIONS:

A. Outcomes:

1. Joining Sets: The student will join 2 sets to verbalize the number of members in each of the 2 original sets and in the resulting set.

B. Context:

1. Joining Sets: The student will be provided with a visual presentation of 2 sets whose sum is less than 10.

C. Teacher Judgment

1. Joining Sets: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Joining
1. Sets

B. Prerequisite Skills:

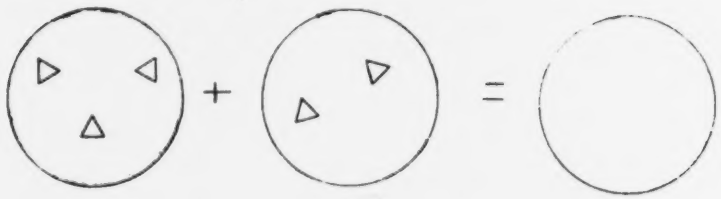
1. Joining Sets:
Counting 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Joining Sets:
MSM 1: 57-61 (t-80-84)
MSM 2: 15, (t-36-37)
EM 1: 35-36, 38-39
EM 2: 13-14, 16
WJ: Trees and Apples p. 148; The Number Cana p. 15; Fences, p. 174; 194, 196, 200, 202, 204, 206-8.

IV. SAMPLE TEST ITEMS:

1. Joining Sets:



Note: It is not necessary to use symbols.
Also, 3-D objects can be used if necessary.

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.16 Module: Separating Sets

I. PURPOSE: To provide the student with skills for separating sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Separating Sets: The student will separate a set into two subsets and verbalize the number of members in each of the three sets.

B. Context:

1. Separating Sets: The student will be provided with a visual presentation of a set with 0 - 9 members.

C. Criteria:

1. Separating Sets: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Separating Sets
1.

B. Prerequisite Skills:

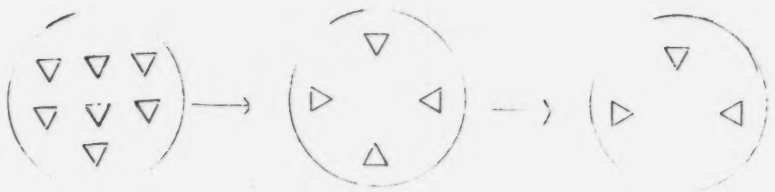
1. Separating Sets:
Counting 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Separating Sets:
EM 1: 35, 37, 42-45
EM 2: 13, 15, 16
MSM 1: 71-75, (t-94-97)
WJ: p. 198, 200, 210.

IV. SAMPLE TEST ITEMS:

1. Separating Sets:



Child says: "Seven in this set, and 4 in this set, 3 in this set"

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.17 Module: Joining n Equivalent Sets (n = 0, 1, 2 ... 9)

I. PURPOSE: To provide the student with the skills for joining equivalent sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Joining 2 Equivalent Sets: The student will join two sets and verbalize the number of members in the final set.

2. Joining n Equivalent Sets: The student will join sets and verbalize the number of members in the final set.

B. Context:

1. Joining 2 Equivalent Sets: The student will be provided with 2 equivalent sets of objects whose members number 0 - 9.

2. Joining n Equivalent Sets: The student will be provided with n equivalent sets of objects where n = 0 - 9, and whose members number 0 - 9.

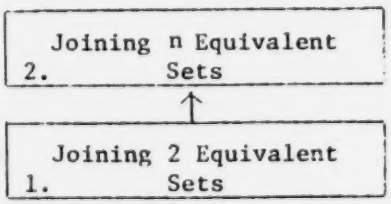
C. Criteria:

1. Joining 2 Equivalent Sets: Teacher Judgment

2. Joining n Equivalent Sets: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Joining 2 Equivalent Sets:
   Joining Sets

2. Joining n Equivalent Sets:
   Objective #1

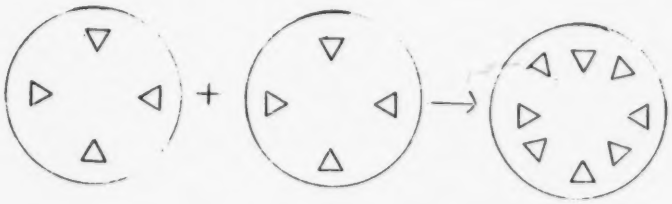
C. Instructional Resources/Options/Activities:

1. Joining 2 Equivalent Sets:
   MSM 2: 281-282, 284 (t-328-321) 288
   EM 2: 202-203

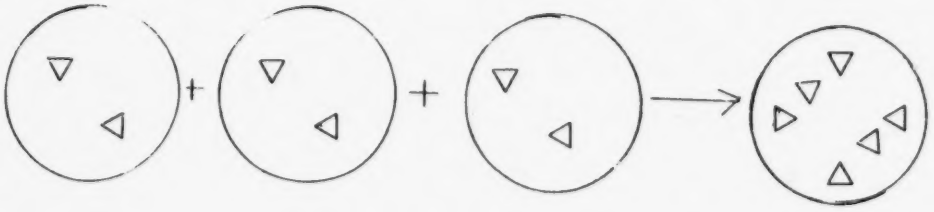
2. Joining n Equivalent Sets:
   MSM 2: (t-326), 293-294, (t-340-341), 297, 301, 304, 311
   MSM 3: (t-152-153)
   EM 2: 206

IV. SAMPLE TEST ITEMS:

1. Joining 2 Equivalent Sets:



2. Joining n Equivalent Sets:



1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.18 Module: Separating Equivalent Sets

I. PURPOSE: To provide the student with the skills for separating equivalent sets.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Separating Equivalent Sets: The student will separate a set and verbalize the number of sets and the number of members in the final sets.

B. Context:

1. Separating Sets: The student will be provided with a set that can be divided evenly by a given divisor.

C. Criteria:

1. Separating Equivalent Sets: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1.	Separating Equivalent Sets

B. Prerequisite Skills:

1. Separating Equivalent Sets:
Separating Sets

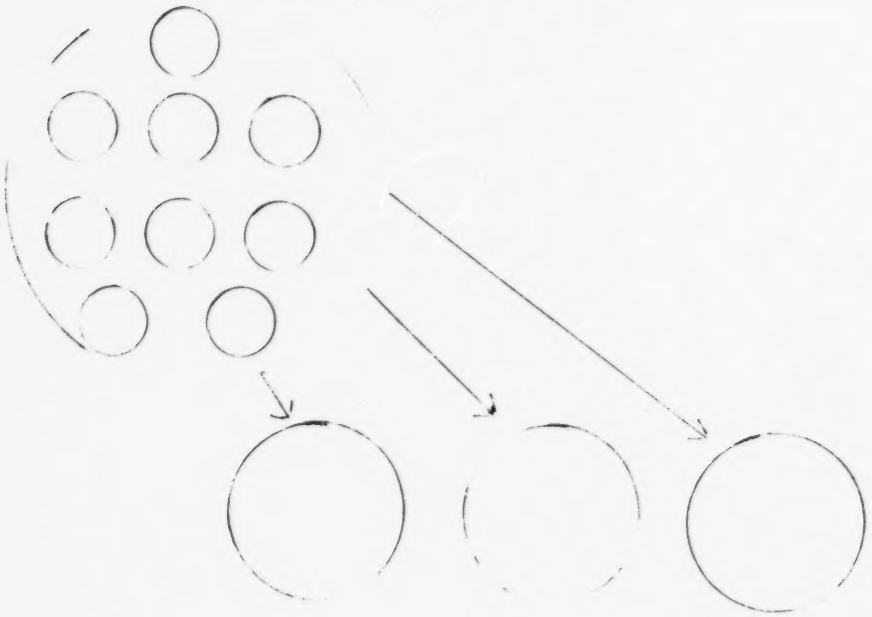
C. Instructional Resources/Options/Activities:

1. Separating Equivalent Sets:
MSM 3: 129, 268-269 (t-304-305)
MSM 4: 94

IV. SAMPLE TEST ITEMS:

1. Separating Sets:

Make this set into 3 equivalent, separate sets.



How many are in each of these sets?

1.0 Competency: Mathematics - Sets and Numeration

1.1 Module Cluster: Sets

1.19 Module: Sets and Subsets

I. PURPOSE: To provide the student with the skills for sets and subsets.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Sets and Subsets: The student will circle a subset and verbalize the number of members in the subset and in the whole set.

B. Context:

1. Sets and Subsets: The student will be provided with a two dimensional and a three dimensional set of objects.

C. Teacher Judgment

1. Sets and Subsets: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence

1. Sets and Subsets

B. Prerequisite Skills:

1. Sets and Subsets:
Separating Equivalent Sets

C. Instructional Resources/Options/Activities:

1. Sets and Subsets:
MSM 3: 3, (t-20-21), 160-164, 168, 188
MSM 4: 6, 7, 128
MSM 5: 3
MSM 6: 3 (t-24-25)

IV. SAMPLE TEST ITEMS:

1. Sets and Subsets:

"Circle a subset:"

"How many were in the first set?" (7)

"How many are in the subset?" (4)

1.0 Competency: Mathematics - Sets & Numeration

1.2 Module Cluster: Numeration

1.21 Module: Counting 1-digit Numbers

I. PURPOSE: To provide the student with the skills for counting 1-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Counting: The student will place sets in the correct order to verbalize and write the corresponding numeral for each set.

B. Context:

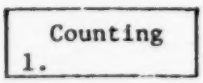
1. Counting: The student will be provided with 10 sets whose members number 0 - 9.

C. Criteria:

1. Counting: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Counting:
Labeling Sets
Ordering Sets

C. Instructional Resources/Options/Activities:

1. Counting:
MSM K: 66-68
MSM 1: 54-56
MES 1: 69-76
EM 1: 22-23
ESM 1: (t-34), (t-35-39), 2:3(t-17)
S&N 1: 19(t-21), 27(t-28), 32-33(t-32)
SRA 1: (t-27, Act. 1 & 2), (t-69, Acts. 3,4), (t-70, Act. 5)

WJ. Pincushions, p. 130; The Safety Pin Game, p. 32; Easter Baskets, p. 134; Number Lines, p. 136; Number Boards, p. 138; Math Recording Game, p. 140; I Counted, p. 142; Number Dots, p. 146; Trees and Apples, p. 148; Hangers and Clothes Pins, p. 156; Cars and Garages, p. 162 Flowers and Vases, p. 164; The Paper Clip Game, p. 166; Number Combination Board, p. 168; p. 172; p. 176; p. 178; p. 182; p. 184.

IV. SAMPLE TEST ITEMS:

1. Counting: Present the student with either 10 pictures or 9 manipulative objects. Ask him to order the sets (0 - 9) and write the corresponding numeral for each set.

1.0 Competency: Mathematics - Sets and Numeration

1.2 Module Cluster: Numeration

1.22 Module: Counting n-digit Numbers

I. PURPOSE: To provide the student with the skills for counting n-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Labeling n-digit Numbers: The student will write the numerals greater than 9.

2. Ordering n-digit Numbers: The student will arrange and/or write the numerals greater than 9 in correct order.

3. Counting n-digit Numbers: The student will write and verbalize in correct order the numbers greater than 9.

B. Context:

1. Labeling n-digit Numbers: The student will be provided with the verbal stimulus of the numbers greater than 9.

2. Ordering n-digit Numbers: The student will be provided with the visual stimulus of at least 3 numerals greater than 9.

3. Counting n-digit Numbers: The student will be requested to verbalize and write the numbers greater than 9.

C. Criteria:

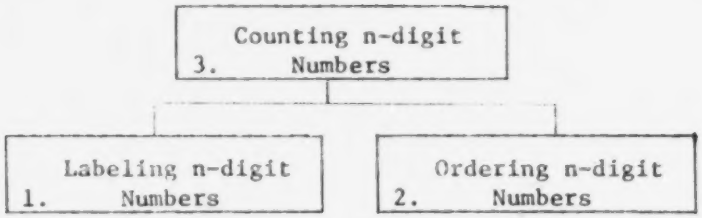
1. Labeling n-digit Numbers: Teacher Judgment

2. Ordering n-digit Numbers: Teacher Judgment

3. Counting n-digit Numbers: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Labeling n-digit Numbers:
   Counting 1-digit Numbers

2. Ordering n-digit Numbers:
   Counting 1-digit Numbers

3. Counting n-digit Numbers
   Objective #1 and 2

C. Instructional Resources/Options/Activities:

1. Labeling n-digit Numbers:
   EM 1: 70-74
   MSM 1: 121-126

2. Ordering n-digit Numbers:
   EM 1: 70-74
   MSM 1: 130, (t-156-157), 245, 121, 126, 128

3. Counting n-digit Numbers:
   MSM 1: 130 (t-156-151), 140-146,(t-172-173),
   246, 248, (t-284-285)
   EM 1: 74, 151
   EM 2: 81-82, 85

IV. SAMPLE TEST ITEMS:

1. Ordering n-digit Numbers: Present the student with 3 flashcards of numerals greater than 9. Ask the student to order them. (The student should be presented with at least 5 problems of this kind, or until the teacher is satisfied that the student understands the objectives.)

2. Labeling n-digit numbers: Call out to the student a number greater than 9 and have him write it. (This should be done any number of times until the teacher is satisfied that the child has successfully mastered the objective.)

3. Counting n-digit Numbers: Ask the student to count out loud, up to 100 (1000).

   3a. Ask the student to write numerals in order up to 100 (1000).

1.0 Competency: Mathematics - Sets and Numeration

1.2 Module Cluster: Numeration

1.23 Module: Place Value

I. PURPOSE: To provide the student with the skills for place value.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Naming the Columns: The student will name the columns (ones, tens, hundreds, thousands, etc.).

2. Place Value: The student will write the numerals.

B. Context:

1. Naming the Columns: The student will be provided with a visually presented numeral which has at least 4 digits.

2. Place Value: The student will be provided with the verbal stimulus of a single digit of a number and its respective column.

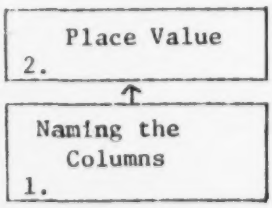
C. Criteria:

1. Naming the Columns: 80% accuracy

2. Place Value: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Naming the Columns:
   Verbal Ability

2. Place Value:
   Objective #1
   Counting n-digit Numbers

C. Instructional Resources/Options/Activities:

1. Naming the Columns:
   MSM 1: 129, 143, 144, 257-258
   MSM 2: 12, 63, 78-79
   MSM 3: 25, 240
   MSM 4: 18
   MSM 6: 18

2. Place Value:
   MSM 5: 13, 17-18
   MSM 6: 18
   Modules on expanded notation and grouping by tens.

IV. SAMPLE TEST ITEMS:

1. Naming the Columns:

"Point to each number and tell me the name of its column:"

4635

2. Place Value:

"Write the numeral for 8 thousands, 2 hundreds, 7 tens, and 4 ones:"

(8274)

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.10 Module: Equation Form

I. PURPOSE: To provide the student with the skills for using equation form.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Equation Form: The student will verbalize that the the equal sign in a horizontal problem indicates that the 2 sides of the equation are equivalent.

B. Context:

1. Equation Form: The student will be requested to verbalize the meaning of equation form.

C. Criteria:

1. Equation Form: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Equation Form
1.

B. Prerequisite Skills:

1. Equation Form:
Equivalence - Non-equivalence

C. Instructional Resources/Options/Activities:

1. Equation Form:
MSM 2: (t-46-49), 27
MSM 3: 34 (t-54)
MSM 4: 10, 32
MSM 5: 10 (t-30)
MSM 6: 12, 30

IV. SAMPLE TEST ITEMS:

1. Equation Form:

"When you have a problem like this:

$$2 + 3 = 5$$

What does this (point to equal sign) mean?"

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.11 Module: Addition of 2 1-digit Numbers

I. PURPOSE: To provide the student with the skills for the addition of 2 1-digit numbers.

II. BEHAVIORAL OBSERVATIONS:

A. Outcomes:

1. Addition of 2 1-digit Numbers: The student will find and record the sum of an addition problem.

B. Context:

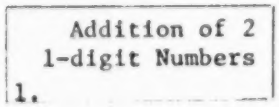
1. Addition of 2 1-digit Numbers: The student will be provided with an addition problem containing 2 1-digit numbers.

C. Criteria:

1. Addition of 2 1-digit Numbers: 80% accuracy.

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Addition of 2 1-digit Numbers:
Joining Sets
Counting n-digit Numbers

C. Instructional Resources/Options/Activities:

1. Addition of 2 1-digit Numbers:
MSM 2:15-18

IV. SAMPLE TEST ITEMS:

1. Addition of 2 1-digit Numbers:

$$\begin{array}{r} 2 \\ +1 \\ \hline \end{array} \quad \text{or} \quad 2 + 1 = \square$$

2.0 **Competency:** Mathematics - Basic Operations

2.1 **Module Cluster:** Addition

2.12 **Module:** Addition of n 1-digit Numbers

I. PURPOSE: To provide the student with the skills for the addition of n 1-digit numbers.

II. BEHAVIORAL OBSERVATIONS:

A. Outcomes:

1. Rule of Successive Addition: The student will verbalize the process of adding 3 1-digit numbers (i.e., "first the sum of 2 addends is found and then the third addend is added to the previous sum - the result is the final sum".)

2. Addition of n 1-digit Numbers: The student will find and record the sum of an addition problem.

B. Context:

1. Rule of Successive Addition: The student will be requested to verbalize the process of successive addition.

2. Addition of n 1-digit Numbers: The student will be provided with an addition problem containing at least 3 1-digit numbers.

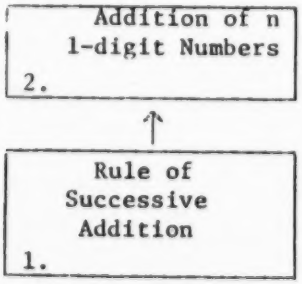
C. Criteria:

1. Rule of Successive Addition: Teacher judgment.

2. Addition of n 1-digit Numbers: 80% accuracy.

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Rule of Successive Addition:
   Verbal Ability

2. Addition of n 1-digit Numbers:
   Objective #1
   Addition of 2 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Rule of Successive Addition:
   MSM 1: 277, 176-180
   MSM 2: (t 60-62)
   MSM 3: 352

2. Addition of n 1-digit Numbers:
   MSM 1: 178
   MSM 2: 63
   MSM 3: 134

IV. SAMPLE TEST ITEMS:

1. Rule of Successive Addition:

"Tell me the first thing you would do in finding the sum of this addition problem: (1 + 2 + 3 = 6)" "Tell me the next thing you would do:"

2. Addition of n 1-digit Numbers:

$3 + 4 + 2 = \square$ or

$$\begin{array}{r} 3 \\ +\,4 \\ \hline 2 \end{array}$$

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.13 Module: Addition of 2 n-digit Numbers (Without Regrouping)

I. PURPOSE: To provide the student with the skills for adding 2 n-digit numbers without regrouping.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Addition of 2 n-digit Numbers Without Regrouping: The student will find and record the sum of an addition problem.

B. Context:

1. Addition of 2 n-digit Numbers Without Regrouping: The student will be provided with an addition problem of 2 n-digit numbers where the sum of the one's column is less than 10.

C. Criteria:

1. Addition of 2 n-digit Numbers Without Regrouping: 80% accuracy

III. INSTRUCTION IMPLEMENTATION:

A. Sequence:

Addition of 2 n-digit Numbers Without Regrouping
1.

B. Prerequisite Skills:

1. Addition of 2 n-digit Numbers Without Regrouping: Addition of 2 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Addition of 2 n-digit Numbers Without Regrouping:
MSM 1: 249,267,268
MSM 2: 267-268, 271-272
MSM 3: 94-95, 102, 107-108,112
EM 1: 52,56-57
EM 2: 74-75

IV. SAMPLE TEST ITEMS:

1. Addition of 2 n-digit Numbers Without Regrouping:

$$\begin{array}{r} 123 \\ +\ 111 \\ \hline \end{array} \quad \text{or} \quad 123 + 111 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.14 Module: Regrouping for Addition (Carrying)

I. PURPOSE: To provide the student with the skills for regrouping for addition.

II. BEHAVIORAL OBSERVATION:

A. Outcomes:

1. Rule of Regrouping: The student will verbalize the process of regrouping for addition: 1) Add one's column, 2) Write down one's unit, 3) Put ten's unit on top of ten's column, 4) Add ten's column successively, and 5) Put down sum of ten's column.

2. Regrouping for Addition: The student will find and record the sum of an addition problem that requires regrouping.

B. Context:

1. Rule of Regrouping: The student will be requested to verbalize the rule of regrouping.

2. Regrouping for Addition: The student will be provided with an addition problem of 2 n-digit numbers where the sum of the one's column is greater than 9.

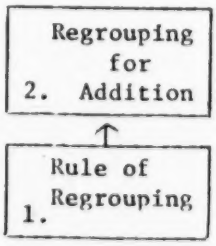
C. Criteria:

1. Rule of Regrouping: Teacher Judgment

2. Regrouping for Addition: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Rule of Regrouping:
   Verbal Ability

2. Regrouping for Addition:
   Objective #1
   Place Value
   Successive Addition

C. Instructional Resources/Options/Activities:

1. Rule of Regrouping:
   None Found

2. MSM 1: 288,293
   MSM 2: 182 (t-212), 184-185

IV. SAMPLE TEST ITEMS:

1. Rule of Regrouping:

"Tell me the steps you would need to go through to add this problem:"

$$\begin{array}{r} 97 \\ +\ 38 \\ \hline 135 \end{array}$$

2. Regrouping for Addition:

$$\begin{array}{r} 47 \\ +\ 68 \\ \hline \end{array} \quad \text{or} \quad 47 + 68 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.15 Module: Addition of any 2 n-digit Numbers

I. PURPOSE: To provide the student with the skills for the addition of any 2 n-digit Numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Addition of any 2 n-digit Numbers: The student will find and record the sum of an addition problem.

B. Context:

1. Addition of any 2 n-digit Numbers: The student will be provided with an addition problem which contains any 2 n-digit numbers.

C. Criteria:

1. Addition of any 2 n-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Addition of any 2 n-digit Numbers
1.

B. Prerequisite Skills:

1. Addition of any 2 n-digit Numbers:
Regrouping
Addition of 2 n-digit Numbers Without Regrouping

C. Instructional Resources/Options/Activities:

1. Addition of any 2 n-digit Numbers:
MSM 1:288,293,296,249, 267-268
MSM 2:267-268, 271-272,182(t-212), 184-185

IV. SAMPLE TEST ITEMS:

1. Addition of any 2 n-digit Numbers:

$$\begin{array}{r} 279 \\ +\ 128 \\ \hline \end{array} \quad \text{or} \quad 279 + 128 = \boxed{}$$

$$\begin{array}{r} 131 \\ +\ 122 \\ \hline \end{array} \quad \text{or} \quad 131 + 122 = \boxed{}$$

$$\begin{array}{r} 49 \\ +\ 21 \\ \hline \end{array} \quad \text{or} \quad 49 + 21 = \boxed{}$$

2.0 Competency: Mathematics - Basic Operations

2.1 Module Cluster: Addition

2.16 Module: Addition of n n-digit Numbers

I. PURPOSE: To provide the student with the skills for the addition of n n-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Addition of n n-digit Numbers: The student will find and record the sum of an addition problem.

B. Context:

1. Addition of n n-digit Numbers: The student will be provided with an addition problem containing n n-digit numbers.

C. Criteria:

1. Addition of n n-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Addition of n n-digit Numbers
1.

B. Prerequisite Skills:

1. Addition of n n-digit Numbers
Addition of 2 n-digit Numbers

C. Instructional Resources/Options/Activities:

1. Addition of n n-digit Numbers:
MSM 2:212, 206-210
MSM 3:180-182

IV. SAMPLE TEST ITEMS:

1. Addition of n n-digit Numbers:

$$\begin{array}{r} 379 \\ 465 \\ +\ 231 \\ \hline \end{array}$$

or $379 + 465 + 231 = \square$

2.0 **Competency:** Mathematics - Basic Operations

2.1 **Module** Cluster: Addition

2.17 Module: Addition and Subtraction of Fractions

I. PURPOSE: To provide the student with the skills for the addition and subtraction of fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Renaming the Sum/Difference: The student will write the sum/difference of a problem in its simplest form (with least common denominator).

2. Finding the Common Denominator: The student will find the common denominator for the addends or subtrahend and minuend of a problem, and record each fraction in its equivalent form (with the common denominator).

3. Addition and Subtraction of Fractions: The student will find and record in its simplest form, the sum and difference of a problem.

B. Context:

1. Renaming the Sum/Difference: The student will be provided with a partially completed addition/subtraction problem in which the sum/difference has not been renamed (reduced).

2. Finding the Common Denominator: The student will be provided with an addition/subtraction problem where at least one number is a fraction and where the numerator of the minuend is greater than the numerator of the subtrahend.

3. Addition and Subtraction of Fractions: The student will be provided with an addition/subtraction problem where at least one number is a fraction and where the numerator of the minuend is greater than the numerator of the subtrahend.

C. Criteria:

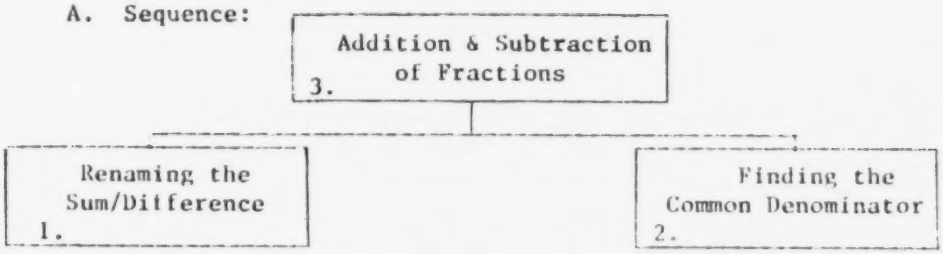
1. Renaming the Sum/Difference: Teacher Judgment

2. Finding the Common Denominator: Teacher Judgment

3. Addition and Subtraction of Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Renaming the Sum/Difference:
   Equivalent Fractions
   Division of n-digit divisor and n-digit quotient

2. Finding the Common Denominator:
   Equivalent Fractions
   Multiplication of 2 n-digit numbers

3. Addition and Subtraction of Fractions:
   Objectives # 1,2
   Addition of n n-digit numbers
   Subtraction of 2 n-digit numbers

C. Instructional Resources/Options/Activities:

1. Renaming the Sum/Difference:
   MSM 4: (t-356-357) 142, 146, 306
   MSM 5: 217,236,239
   MSM 6: 205 (t-254,255), 209, 215 (t-264-265)

2. Finding the Common Denominator:
   MSM 4: 307-308 (t-356-357)
   MSM 5: 234-239
   MSM 6: 217,218, 220-221 (t-270-271)

3. Addition and Subtraction of Fractions:
   MSM 5:235-240, 247,249,251,327,244,
   247-251,251,259
   MSM 6:247, 208-209, 214-225, 231,233

IV. SAMPLE TEST ITEMS:

A. Renaming the Sum/Difference:

1. "Put the Sum/Difference in Simplest Form:"

$$\frac{4}{3} + \frac{13}{3} = \frac{17}{3} = \square$$

$$\frac{17}{4} - \frac{9}{4} = \frac{8}{4} = \square$$

2. Finding the Common Denominator:

$$\frac{3}{4} + 1\frac{7}{8} = \_\_\_\_ + \_\_\_\_$$

$$4\frac{1}{2} - 3\frac{1}{3} = \_\_\_\_ + \_\_\_\_$$

3. Addition and Subtraction of Fractions:

$$7\ 1/3 + 4\ 2/5 = \square$$

$$8\ 1/3 - 2\ 1/4 = \square$$

$$1 + 1/3 = \square$$

$$3 - 2/7 = \square$$

$$3/4 + 1/3 = \square$$

$$7/8 - 1/3 = \square$$

2.0 Competency: Mathematics

2.1 Module Cluster: Addition

2.18 Module: Addition and Subtraction of Decimal Fractions

I. PURPOSE: To provide the student with the skills for the addition and subtraction of decimal fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Placing the Decimal Point in the Sum/Difference: The student will place the decimal point in the sum/difference of a problem.

2. Addition and Subtraction of Decimal Fractions: The student will find and record the sum and difference of a problem.

B. Context:

1. Placing the Decimal Point in the Sum/Difference: The student will be provided with a partially finished addition/subtraction problem where at least one number is a decimal fraction and where the decimal point has not been placed in the sum/difference.

2. Addition and Subtraction of Decimal Fractions: The student will be provided with an addition/subtraction problem where at least one number is a decimal fraction.

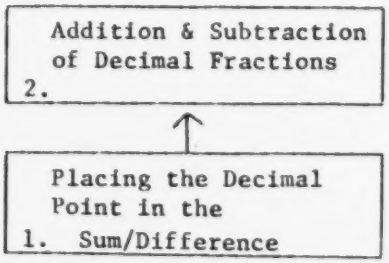
C. Criteria:

1. Placing the Decimal Point in the Sum/Difference: 100% accuracy

2. Addition and Subtraction of Decimal Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Placing the Decimal Point in the Sum/Difference:
   Decimal fractions

2. Addition and Subtraction of Decimal Fractions:
   Objective # 1
   Addition of n n-digit numbers
   Subtraction of 2 n-digit numbers

C. Instructional Resources/Options/Activities:

1. Placing the Decimal Point in the Sum/Difference:
   MSM 5: (t-390)
   MSM 6: (t-360-361)

2. Addition and Subtraction of Decimal Fractions:
   MSM 5: 334
   MSM 6: 302, 303, 304(t-360-362)

IV. SAMPLE TEST ITEMS:

1. Placing the Decimal Point:

$$\begin{array}{r} 7.32 \\ +\ 1.00 \\ \hline 8\ 32 \end{array} \qquad \begin{array}{r} 63.1 \\ -\ 4.3 \\ \hline 58\ 8 \end{array}$$

2. Addition and Subtraction of Decimal Fractions:

$$\begin{array}{r} 8.43 \\ +\ 9.10 \\ \hline \end{array} \quad \text{or} \quad \begin{array}{r} \$6.49 \\ +\ 3.78 \\ \hline \end{array}$$

$$\begin{array}{r} 9.31 \\ -\ 1.20 \\ \hline \end{array} \quad \text{or} \quad \begin{array}{r} \$6.35 \\ -\ 1.98 \\ \hline \end{array}$$

2.0 Competency: Mathematics - Basic Operations

2.2 Module Cluster: Subtraction

2.21 Module: Subtracting 2 1-digit Numbers

I. PURPOSE: To provide the student with the skills for subtracting 2 1-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Subtracting 2 1-digit Numbers: The student will find and record the difference of a subtraction problem.

B. Context:

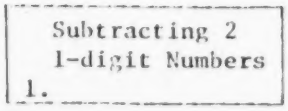
1. Subtracting 2 1-digit Numbers: The student will be provided with a subtraction problem of 2 1-digit numbers where the minuend is always greater than the subtrahend.

C. Criteria:

1. Subtracting 2 1-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Subtracting 2 1-digit Numbers:
Separating Sets

C. Instructional Resources/Options/Activities:

1. Subtracting 2 1-digit Numbers:
MSM 1: 76-82, (t-98-105)
MSM 2: 40, 46, 48
EM 1: 45-49
EM 2: 15-17, 30, 33

IV. SAMPLE TEST ITEMS:

Subtracting 2 1-digit Numbers:

$$\begin{array}{r} 7 \\ -\ 2 \\ \hline \end{array} \quad \text{or} \quad 7 - 2 = \square$$

2.0 **Competency:** Mathematics - Basic Operations

2.2 **Module Cluster:** Subtraction

2.22 **Module:** Subtraction of a 1-digit Number from a 2-digit Number Without Regrouping.

I. PURPOSE: To provide the student with the skills for subtracting a 1-digit number from a 2-digit number without regrouping.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Subtracting a 1-digit Number from a 2-digit Number Without Regrouping: The student will find and record the difference of a subtraction problem.

B. Context:

1. Subtracting a 1-digit Number from a 2-digit Number Without Regrouping: The student will be provided with a subtraction problem in which the one's digit of the minuend (2-digit Number) is greater than the one's digit of the subtrahend (1-digit Number).

C. Criteria:

1. Subtracting a 1-digit Number from a 2-digit Number Without Regrouping: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Subtracting a 1-digit Number from a 2-digit Number Without Regrouping

1.

B. Prerequisite Skills:

1. Subtracting a 1-digit Number from a 2-digit Number Without Regrouping:
Subtracting 2 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Subtracting a 1-digit Number from a 2-digit Number Without Regrouping:
   MSM 1: 234-235,237, 243-244, 278,281,283, 284,287
   MSM 2: 117,130,142,149,150,151,152
   EM 1: 140, 163, 192-194
   EM 2: 70, 152

IV. SAMPLE TEST ITEMS:

1. Subtraction of a 1-digit Number from a 2-digit Number Without Regrouping:

$$\begin{array}{r} 17 \\ -\ 5 \\ \hline \end{array} \quad \text{or} \quad 17 - 5 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.2 Module Cluster: Subtraction

2.23 Module: Regrouping for Subtraction

I. PURPOSE: To provide the student with the skills for subtracting with regrouping.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Rule of Regrouping for Subtraction: The student will verbalize the process of regrouping for subtraction (e.g., 1) Subtract one ten from the ten's column and write the difference above the ten's column, 2) Add the borrowed ten's unit to the one's column and write the sum above the one's column, 3) Subtract the one's column and write down the difference, 4) Subtract the ten's column and write down the difference).

2. Regrouping for Subtraction: The student will find and record the difference of a subtraction problem.

B. Context:

1. Rule of Regrouping for Subtraction: The student will be requested to verbalize the process of regrouping for subtraction.

2. Regrouping for Subtraction: The student will be provided with a subtraction problem in which the one's digit of the minuend is less than the one's digit of the subtrahend.

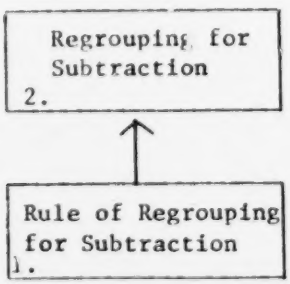
C. Criteria:

1. Rule of Regrouping for Subtraction: Teacher Judgment

2. Regrouping for Subtraction: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Rule of Regrouping for Subtraction:

2. Regrouping for Subtraction:
   Subtracting 2 1-digit Numbers
   Addition of 2 n-digit Numbers Without Regrouping

C. Instructional Resources/Options/Activities:

1. Rule of Regrouping for Subtraction:
   Verbal Ability

2. Regrouping for Subtraction:
   MSM 2: 251-252, 255
   EM 2: 127, 152,157, 170-173

IV. SAMPLE TEST ITEMS:

1. Rule of Regrouping for Subtraction:

"Tell me what steps you would go through to subtract this problem:"

$$\begin{array}{r} 54 \\ -\ 27 \\ \hline 27 \end{array}$$

2. Regrouping for Subtraction:

$$\begin{array}{r} 32 \\ -\ 17 \\ \hline \end{array} \qquad \text{or} \qquad 32 - 17 = \square$$

2.0 **Competency:** Mathematics - Basic Operations

2.2 Module Cluster: Subtraction

2.24 Module: Subtraction of 2 n-digit Numbers

I. PURPOSE: To provide the student with the skills for subtracting 2 n-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Subtracting 2 n-digit Numbers: The student will find and record the difference of a subtraction problem.

B. Context:

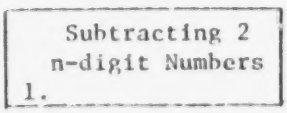
1. Subtracting 2 n-digit Numbers: The student will be provided with a subtraction problem of 2 n-digit numbers whose difference will be a whole number.

C. Criteria:

1. Subtracting 2 n-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Subtracting 2 n-digit Numbers:
Regrouping for Subtraction
Subtraction of a 1-digit from a 2-digit Number Without Regrouping

C. Instructional Resources/Options/Activities:

1. Subtracting 2 n-digit Numbers:
MSM 2: 259-261, 269-270 (t-314-315) 273-274,279
MSM 3: 106-113, 119, 125
EM 2: 174, 196

IV. SAMPLE TEST ITEMS:

1. Subtracting of 2 n-digit Numbers:

$$\begin{array}{r} 4708 \\ -\ 3946 \\ \hline \end{array} \quad \text{or} \quad 4708 - 3946 = \square$$

$$\begin{array}{r} 6385 \\ -\ 2173 \\ \hline \end{array} \quad \text{or} \quad 6385 - 2173 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.2 Module Cluster: Subtraction

2.25 Module: Addition/Subtraction of Fractions

See: 2.1 Module Cluster: Addition
2.17 Module: Addition/Subtraction of Fractions

Note: Since the basic skills are the same, there is only one module which is listed under the Addition cluster because addition is usually taught first.

2.0 Competency: Mathematics - Basic Operations

2.2 Module Cluster: Subtraction

2.26 Module: Addition/Subt action of Decimal Fractions

See: 2.1 Module Cluster: Addition
2.18 Module: Addition/Subtraction Decimal Fractions

Note: Since the basic skills are the same, there is only one module which is listed under the Addition cluster because addition is usually taught first.

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.31 Module: Multiplication of 2 1-digit Numbers

I. PURPOSE: To provide the student with the skills for the multiplication of 2 1-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Multiplication of 2 1-digit Numbers: The student will find and record the product of a multiplication problem.

B. Context:

1. Multiplication of 2 1-digit Numbers: The student will be provided with a multiplication problem of 2 1-digit numbers.

C. Criteria:

1. Multiplication of 2 1-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Multiplication of 2 1-digit Numbers
1.

B. Prerequisite Skills:

1. Multiplication of 2 1-digit Numbers: Joining Equivalent Sets

C. Instructional Resources/Options/Activities:

1. Multiplication of 2 1-digit Numbers:
MSM 2: 289,290,295,296(t-336-337),298,299,300,302, 303,305,306,312-314,317
MSM 3: 126-127(t-154-155), 132-135,136-138,141-143, 194-197,198-199,200-201,220
EM 2: 206,207,209

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.32 Module: Regrouping for Multiplication

I. PURPOSE: To provide the student with the skills for multiplication with regrouping.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Rule of Regrouping for Multiplication: The student will verbalize the process of regrouping for multiplication, e.g., 1) Multiply bottom factor times one's digit in top factor, 2) Write down one's digit of product in one's column, 3) Write ten's digit of Step 1 above the ten's column, 4) Multiply the bottom factor times the ten's digit in the top factor, 5) Add the product of Step 4 to the ten's digit of Step 3, 6) Write down sum of Step 5 in appropriate column(s).

2. Regrouping for Multiplication: The student will find and record the product of a multiplication problem.

B. Context:

1. Rule of Regrouping for Multiplication: The student will be required to verbalize the process of regrouping without supplying the product.

2. Regrouping for Multiplication: The student will be provided with a multiplication problem of a 2-digit number by a 1-digit number where the product of the one's column is greater than 9.

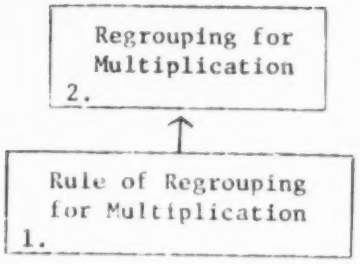
C. Criteria:

1. Rule of Regrouping for Multiplication: Teacher Judgment

2. Regrouping for Multiplication: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Rule of Regrouping for Multiplication:
   Place Value
   Multiplication of 2 1-digit Numbers

2. Regrouping for Multiplication:
   Objective #1

C. Instructional Resources/Options/Activities:

1. Rule of Regrouping for Multiplication:
   Verbal ability

2. Regrouping for Multiplication:
   MSM 3: 259(t-294-295), 260,261(t-296-297)
   264-265(t-300-301)
   MSM 4: 115,117,118-121

IV. SAMPLE TEST ITEMS:

1. Rule of Regrouping for Multiplication:
   "Tell me the steps you would go through to do this multiplication problem:"

$$\begin{array}{r} 35 \\ \times\ 3 \\ \hline \end{array} \quad \text{or} \quad 35 \times 3 = \boxed{}$$

2. Regrouping for Multiplication:

$$\begin{array}{r} 27 \\ \times\ 3 \\ \hline \end{array} \quad \text{or} \quad 27 \times 3 = \boxed{}$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.33 Module: Multiplication of 2-digit Number by a 1-digit Number Without Regrouping.

I. PURPOSE: To provide the student with the skills for the multiplication of a 2-digit number by a 1-digit number without regrouping.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Multiplication of 2-digit Number by a 1-digit Number Without Regrouping: The student will find and record the product of a multiplication problem.

B. Context:

1. Multiplication of 2-digit Number by a 1-digit Number Without Regrouping: The student will be provided with a multiplication problem of a 2-digit number by a 1-digit number where the product of the one's column is a 1-digit number.

C. Criteria:

1. Multiplication of 2-digit Number by a 1-digit Number Without Regrouping: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Multiplication of a 2-digit Number by a 1-digit Number
1. Without Regrouping

B. Prerequisite Skills:

1. Multiplication of a 2-digit Number by a 1-digit Number Without Regrouping:
Place Value
Multiplication of 2 1-digit Numbers

C. Instructional Resources/Options/Activities:

1. Multiplication of a 2-digit Number by a 1-digit Number Without Regrouping:
   MSM 3: 256-257(t-292-293)
   MSM 4: 116

IV. SAMPLE TEST ITEMS:

1. Multiplication of a 2-digit Number by a 1-digit Number Without Regrouping:

$$\begin{array}{r} 43 \\ \times\ 2 \\ \hline \end{array} \quad \text{or} \quad 43 \times 2 = \boxed{}$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.34 Module: Multiplication of 2-digit Number by 1-digit Number.

I. PURPOSE: To provide the student with the skills for the multiplication of a 2-digit number by a 1-digit number.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Multiplication of 2-digit Number by a 1-digit Number: The student will find and record the product of a multiplication problem.

B. Context:

1. Multiplication of 2-digit Number by a 1-digit Number The student will be provided with a multiplication problem of a 2-digit number by a 1-digit number.

C. Criteria:

1. Multiplication of 2-digit Number by a 1-digit Number: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1. Multiplication of a 2-digit Number by a 1-digit Number

B. Prerequisite Skills:

1. Multiplication of a 2-digit Number by a 1-digit Number: Regrouping for Multiplication

C. Instructional Resources/Options/Activities:

1. Multiplication of a 2-digit Number by a 1-digit Number:
MSM 3: 254,256-259(t-294-295),260-261(t-296-297), 264-265(t-300-301) 283
MSM 4: 116-119

IV. SAMPLE TEST ITEMS:

1. Multiplication of 2-digit Number by 1-digit Number:

$$\begin{array}{r} 54 \\ \times\ 3 \\ \hline \end{array} \qquad \text{or} \qquad 54 \times 3 = \boxed{}$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.35 Module: Multiplication of 2 2-digit Numbers

I. PURPOSE: To provide the student with the skills for the multiplication of 2 2-digit numbers

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Placement of the 2nd product: The student will verbalize the correct position for the second product in a multiplication problem.

2. Multiplication of 2 2-digit Numbers: The student will find and record the product of a multiplication problem.

B. Context:

1. Placement of the 2nd product: The student will be provided with a partially finished multiplication problem of 2 2-digit numbers.

2. Multiplication of 2 2-digit Numbers: The student will be provided with a multiplication problem of 2 2-digit numbers.

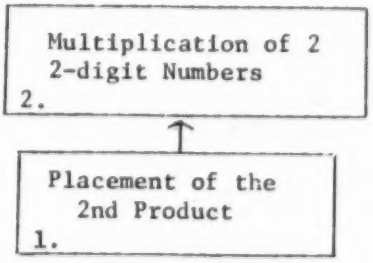
C. Criteria:

1. Placement of the Second Product: 80% accuracy

2. Multiplication of 2 2-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Placement of the 2nd Product:
   Multiplication of a 2-digit number by a 1-digit number.

2. Multiplication of 2 2-digit Numbers:
   Objective #1
   Addition of n n-digit numbers

C. Instructional Resources/Options/Activities:

1. Placement of the 2nd Product:
   None found

2. Multiplication of 2 2-digit Numbers:
   MSM 4: 218,222,227-228
   MSM 6: 67

IV. SAMPLE TEST ITEMS:

1. Placement of the 2nd Product:

   "Tell me where you would place the second product in this multiplication problem:"

$$\begin{array}{r} 43 \\ \times\ 56 \\ \hline 258 \\ \\ \hline 2408 \end{array}$$

2. Multiplication of 2 2-digit Numbers:

$$\begin{array}{r} 74 \\ \times\ 28 \\ \hline \end{array} \qquad \text{or} \qquad 74 \times 28 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.36 Module: Multiplication of 2 n-digit Numbers

I. PURPOSE: To provide the student with the skills for the multiplication of 2 n-digit numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Multiplication of 2 n-digit Numbers: The student will find and record the product of a multiplication problem.

B. Context:

1. Multiplication of 2 n-digit Numbers: The student will be provided with a multiplication problem of 2 n-digit numbers.

C. Criteria:

1. Multiplication of 2 n-digit Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1. Multiplication of 2 2-digit Numbers

B. Prerequisite Skills:

1. Multiplication of 2 n-digit Numbers: Multiplication of 2 2-digit Numbers

C. Instructional Resources/Options/Activities:

1. Multiplication of 2 n-digit Numbers:
MSM 4: 229,223
MSM 5: 111,131
MSM 6: 45(t-72-73), 53,65,100,102-105,117,126-127, 148,183,196

IV. SAMPLE TEST ITEMS:

1. Multiplication of 2 n-digit Numbers:

$$\begin{array}{r} 3204 \\ \times\ 122 \\ \hline \end{array} \qquad \text{or} \qquad 3204 \times 122 = \square$$

$$\begin{array}{r} 7892 \\ \times\ 276 \\ \hline \end{array} \qquad \text{or} \qquad 7892 \times 276 = \square$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.37 Module: Multiplication of Fractions

I. PURPOSE: To provide the student with the skills for the multiplication of fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Multiplication of Fractions: The student will find and record the product of a multiplication problem.

B. Context:

1. Multiplication of Fractions: The student will be provided with a multiplication problem where at least one factor is a fractional number.

C. Criteria:

1. Multiplication of Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Multiplication of Fractions
1.

B. Prerequisite Skills:

1. Multiplication of Fractions:
Addition and Subtraction of Fractions
Multiplication of 2 n-digit Numbers

C. Instructional Resources/Options/Activities:

1. Multiplication of Fractions:
MSM 4: 135,152-153
MSM 5: 202-203, 290-295,302-303,305,313,328
MSM 6: 234-236, 239-247, 260-261

IV. SAMPLE TEST ITEMS:

1. Multiplication of Fractions:

$$4 \times \frac{1}{3} = \square$$

$$\frac{1}{2} \times \frac{3}{7} = \square$$

2.0 Competency: Mathematics - Basic Operations

2.3 Module Cluster: Multiplication

2.38 Module: Multiplication of Decimal Fractions

I. PURPOSE: To provide the student with the skills for the multiplication of decimal fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Placing the Decimal Point in the Product: The student will place the decimal point in the product of a multiplication problem.

2. Multiplication of Decimal Fractions: The student will find and record the product of a multiplication problem.

B. Context:

1. Placing the Decimal Point in the Product: The student will be provided with a partially finished multiplication problem in which at least one factor is a decimal fraction, to where the decimal point has not yet been placed in the product.

2. Multiplication of Decimal Fractions: The student will be provided with a multiplication problem in which at least one or both factors are decimal fractions.

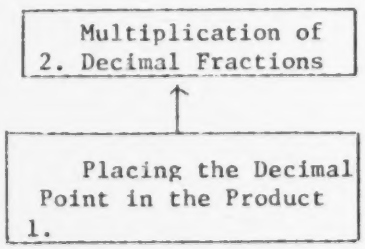
C. Criteria:

1. Placing the Decimal Point in the Product: 80% accuracy

2. Multiplication of Decimal Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Placing the Decimal Point in the Product: Decimal Fractions

2. Multiplication of Decimal Fractions: Objective # 1

C. Instructional Resources/Options/Activities:

1. Placing the Decimal Point in the Product:
MSM 5: (t-390-391)
MSM 6: (t-364-367), 306-310 (t-368)

IV. SAMPLE TEST ITEMS:

1. Placing the Decimal Point in the Product:

"Place the decimal point in the correct place in the product:"

$$\begin{array}{r} .37 \\ \times\ 7 \\ \hline \end{array} \quad \text{or} \quad \begin{array}{r} 2.3 \\ \times\ .4 \\ \hline \end{array} \quad \text{or} \quad \begin{array}{r} 5.23 \\ \times\ 7.8 \\ \hline 4184 \\ 3661 \\ \hline 40794 \end{array}$$

2. Multiplication of Decimal Fractions:

$$\begin{array}{r} .6 \\ \times\ 4 \\ \hline \end{array} \quad \text{or} \quad .6 \times 4 = \boxed{}$$

$$\begin{array}{r} 3.2 \\ \times\ .7 \\ \hline \end{array} \quad \text{or} \quad 3.2 \times .7 = \boxed{}$$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.41 Module: Division with 1-digit Divisor and a 1-digit Quotient

I. PURPOSE: To provide the student with the skills for division with a 1-digit divisor and 1-digit quotient.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Division with 1-digit Divisor and 1-digit Quotient: The student will find and record the quotient of a division problem.

B. Context:

1. Division with 1-digit Divisor and 1-digit Quotient: The student will be provided with a division problem with 1-digit divisor and a 1-digit quotient which does not result in a remainder.

C. Criteria:

1. Division with a 1-digit Divisor and a 1-digit Quotient: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1. Division with 1-digit Divisor and 1-digit Quotient

B. Prerequisite Skills:

1. Division with 1-digit Divisor and a 1-digit Quotient: Separating Equivalent Sets

C. Instructional Resources/Options/Activities:

1. Division with 1-digit Divisor and 1-digit Quotient:
MSM 3: 130,134,138, 270-273, 143, 195-197, 199, 200, 201
MSM 4: 109

IV. SAMPLE TEST ITEM:

1. Division with 1-digit Divisor and 1-digit Quotient:

$3\overline{)6}$ or $6 \div 3 = \square$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.42 Module: Remainders

I. PURPOSE: To provide the student with the skills for identifying remainders.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Remainders: The student will verbalize the number which represents the remainder and write it after the quotient, preceded by a capital R.

B. Context:

1. Remainders: The student will be provided with a completed division problem which results in a remainder.

C. Criteria:

1. Remainders: Teacher Judgment

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Remainders
1.

B. Prerequisite Skills:

1. Remainders:
Division with 1-digit divisor and 1-digit quotient

C. Instructional Resources/Options/Activities:

1. Remainders:
MSM 3: 274-276 (t-310-312)
MSM 4: 180-182 (t-218-219)
MSM 5: 118-119 (t-152-153)

IV. SAMPLE TEST ITEMS:

$$\begin{array}{r} 14 \\ 3\overline{)\,43} \\ \underline{3} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

Which number is the remainder?
Place it in the right position.

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.43 Module: Division with a 1-digit Divisor and a 2-digit Quotient

I. PURPOSE: To provide the student with the skills for dividing with a 1-digit divisor and a 2-digit quotient.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Preparing for the 2nd Partial Quotient: The student will verbalize and execute the process of preparing for the 2nd (3rd, 4th, 5th, etc.) partial Quotient (i.e., "bring down the next digit in the dividend and write it to the right of the difference ...").

2. Division with a 1-digit Divisor and a 2-digit Quotient: The student will find and record the quotient of a division problem.

B. Context:

1. Preparing for the 2nd Partial Quotient: The student will be provided with a division problem which has a 1-digit divisor and a 2-digit quotient in which the first partial quotient has been prepared.

2. Division with a 1-digit Divisor and a 2-digit Quotient: The student will be provided with a division problem with a 1-digit divisor and a 2-digit quotient.

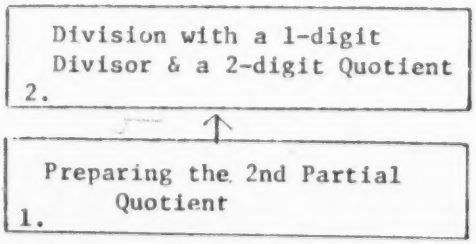
C. Criteria:

1. Preparing for the 2nd Partial Quotient: Teacher Judgment

2. Division with a 1-digit Divisor and a 2-digit Quotient: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Preparing the 2nd Partial Quotient:
   Remainders

2. Division with a 1-digit Divisor and a 2-digit Quotient:
   Objective #1

C. Instructional Resources/Options/Activities:

1. Preparing the 2nd Partial Quotient:
   None found

2. Division with a 1-digit Divisor and a 2-digit Quotient:
   MSM 3: 332-333, 336-338, 340-341
   MSM 4: 185, 233-237
   MSM 5: (t-130-131), 121-123

IV. SAMPLE TEST ITEMS:

1. Preparing for the 2nd Partial Quotient:

"What step would you do next to complete this problem?"

$$\begin{array}{r} 5 \\ 7\overline{)398} \\ \underline{35} \\ 4 \end{array}$$

2. Division with a 1-digit Divisor and a 2-digit Quotient:

$$8\overline{)356}$$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.44 Module: Division with 2-digit Divisor and 1-digit Quotient

I. PURPOSE: To provide the student with the skills for division with a 2-digit divisor and a 1-digit quotient.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Division with a 2-digit Divisor and a 1-digit Quotient: The student will find and record the quotient of a division problem.

B. Context:

1. Division with a 2-digit Divisor and a 1-digit Quotient: The student will be provided with a division problem with a 2-digit divisor and a 1-digit quotient.

C. Criteria:

1. Division with a 2-digit Divisor and a 1-digit Quotient: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Division with a 2-digit Divisor & a 1-digit Quotient
1.

B. Prerequisite Skills:

1. Division with a 2-digit Divisor and a 1-digit Quotient: Remainders

C. Instructional Resources/Options/Activities:

1. Division with a 2-digit Divisor and a 1-digit Quotient: None found in MSM

IV. SAMPLE TEST ITEMS:

Division with a 2-digit Divisor & a 1-digit Quotient:

$23\overline{)43}$ or $43 \div 23 = \square$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.45 Module: Estimating Quotients

I. PURPOSE: To provide the student with the skills for estimating quotients.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Divisability: The student will verbalize that a 1-digit number cannot be divided by a 2-digit number (and a 2-digit cannot be divided by a 3-digit, etc., ...).

2. Rounding Off: The student will verbalize the process of rounding off the divisor and the dividend to the nearest ten's and/or hundreth's place (eg: a digit of 0-4 is rounded down, a digit of 5-9 is rounded up).

3. Estimating Quotients: The student will, without the use of paper and pencil, find the first partial quotient of a division problem, and then verbalize this partial quotient.

B. Context:

1. Divisability: The student will be requested to verbalize the rule of divisability.

2. Rounding Off: The student will be requested to verbalize the rule for rounding off.

3. Estimating Quotients: The student will be provided with a division problem with either a 1-digit divisor and a 2-digit quotient or a 2-digit divisor and a 1-digit quotient.

C. Criteria:

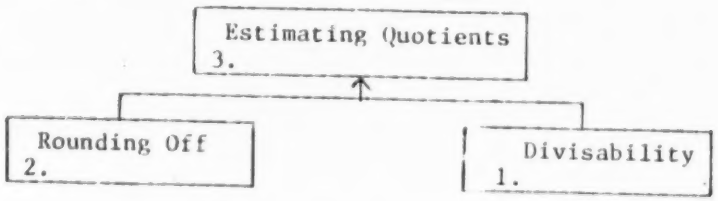
1. Divisability: Teacher Judgment

2. Rounding Off: Teacher Judgment

3. Estimating Quotients: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Divisability:
   Division with a 1-digit divisor and a 1-digit quotient

2. Rounding Off:
   Place Value

3. Estimating Quotients:
   Objectives 1 & 2

C. Instructional Resources/Options/Activities:

1. Divisability:
   MSM 5: 182-185 (t-222-225)

2. Rounding Off:
   MSM 4: 327,(t-378), 252, (t-296)
   MSM 5: 124 (t-158), 128-129, (t-162-163)

e. Estimating Quotients:
   None found in MSM

IV. SAMPLE TEST ITEMS:

1. Divisability: "Can you divide the number 4 by number 12?"
   "Can you divide the number 23 by 207?"

2. Rounding Off: "To what number would you round the divisor and the dividend in the following problem (to 10's and 100's):"

$$44\overline{)656}$$

3. Estimating Quotients:

$$7\overline{)345} \qquad \text{or} \qquad 25\overline{)29}$$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.46 Module: Division with a 2-digit Divisor and a 2-digit Quotient

I. PURPOSE: To provide the student with the skills for division with a 2-digit divisor and a 2-digit quotient.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Division with a 2-digit Divisor and a 2-digit Quotient: The student will find and record the quotient of a division problem.

B. Context:

1. Division with a 2-digit Divisor and a 2-digit Quotient: The student will be provided with a division problem with a 2-digit divisor and a 2-digit quotient.

C. Criteria:

1. Division with a 2-digit Divisor and a 2-digit Quotient: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1. Division with a 2-digit Divisor and a 2-digit Quotient

B. Prerequisite Skills:

1. Division with a 2-digit divisor and a 2-digit quotient:
Division with a 1-digit divisor and a 1-digit quotient.
Division with a 2-digit divisor and a 1-digit quotient.
Estimating quotients

C. Instructional Resources/Options/Activities:

1. Division with a 2-digit Divisor and a 2-digit Quotient:
   MSM 5: 126-129,137
   MSM 6: 111-113

IV. SAMPLE TEST ITEMS:

1. Division with a 2-digit Divisor and a 2-digit Quotient:

$34\overline{)762}$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.47 Module: Division with an n-digit Divisor and an n-digit Quotient

I. PURPOSE: To provide the student with the skills for division with an n-digit quotient.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Division with an n-digit Divisor and an n-digit Quotient: The student will find and record the quotient of a division problem.

B. Context:

1. Division with an n-digit Divisor and an n-digit Quotient: The student will be provided with a problem with an n-digit divisor and an n-digit quotient.

C. Criteria:

1. Division with an n-digit Divisor and an n-digit Quotient: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

1. Division with an n-digit Divisor and an n-digit Quotient

B. Prerequisite Skills:

1. Division with an n-digit Divisor and an n-digit Quotient: Division with a 2-digit Divisor and a 2-digit Quotient

C. Instructional Resources/Options/Activities:

1. Division with an n-digit Divisor and an n-digit Quotient:
MSM 5: 131
MSM 6: 116,117

IV. SAMPLE TEST ITEMS:

1. Division with an n-digit Divisor and an n-digit Quotient:

$$347\overline{)7359}$$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.48 Module: Division of Fractions

I. PURPOSE: To provide the student with the skills for dividing fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcome:

1. Finding the Reciprocal: The student will demonstrate he knows the concept of multiplying by the reciprocal by inverting the divisor.

2. Division of Fractions: The student will find and record the quotient of a division problem.

B. Context:

1. Finding the Reciprocal: The student will be provided with a division problem where at least the divisor and/or the dividend is a fractional number.

2. Division of Fractions: The student will be provided with a division problem where at least the divisor and/or the dividend is a fractional number.

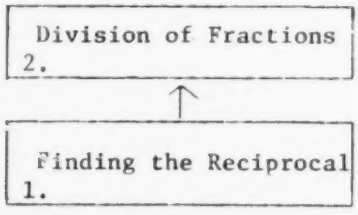
C. Criteria:

1. Finding the Reciprocal: Teacher Judgment

2. Division of Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Finding the Reciprocal:
   Fractional Numbers

2. Division of Fractions:
   Objective 1
   Multiplication of Fractions

C. Instructional Resources/Options/Activities:

1. Finding the Reciprocal:
   MSM 5: 202, (t-246)
   MSM 6: (t-304-305), 254-255, (t-306-307), 258-259

2. Division of Fractions:
   MSM 5: 200-203, 216-217, 225, 292, 294-295, 308-310, 313, 326, 329
   MSM 6: 252-253, 256-257, 264-265, 261

IV. SAMPLE TEST ITEMS:

1. Finding the Reciprocal:

"What is the first step in dividing this problem:"

$$\frac{3}{4} \div \frac{1}{7} =$$

2. Division of Fractions:

$$7\frac{1}{4} \div 6\frac{1}{9} = \square$$

$$1\frac{1}{1} \div \frac{3}{4} = \square$$

$$\frac{1}{2} \div \frac{2}{7} = \square$$

2.0 Competency: Mathematics - Basic Operations

2.4 Module Cluster: Division

2.49 Module: Division of Decimal Fractions

I. PURPOSE: To provide the student with the skills for dividing decimal fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Moving the Decimal Point: The student will move the decimal point in the divisor to create a whole number and then move the decimal point the same number of spaces in the dividend.

2. Division of Decimal Fractions: The student will find and record the quotient of a division problem.

B. Context:

1. Moving the Decimal Point: The student will be provided with a division problem in which at least the divisor, or both the divisor and the dividend are decimal fractions.

2. Division of Decimal Fractions: The student will be provided with a division problem in which at least the divisor, or both the divisor and the dividend are decimal fractions.

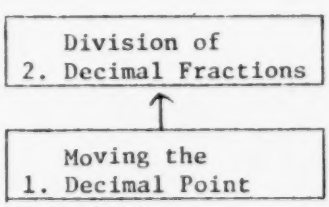
C. Criteria:

1. Moving the Decimal Point: 80% accuracy

2. Division of Decimal Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Moving the Decimal Point:
   Place Value
   Decimal Fractions

2. Division of Decimal Fractions:
   Objective #1
   Division with n-digit divisor and n-digit quotient

C. Instructional Resources/Options/Activities:

1. Moving the Decimal Point:
   MSM 6: (t-372-373) 314-315

2. Division of Decimal Fractions:
   MSM 6: 311-315

IV. SAMPLE TEST ITEMS:

1. Moving the Decimal Point:
   "Place the decimal point in the right place so that one could divide the problem:"

$$.24\overline{)34.79}$$

2. Division of Decimal Fractions:

$$.29\overline{)780}$$

$$.36\overline{)78.965}$$

2.0 Competency: Mathematics - Basic Operations

2.5 Module Cluster: Fractions

2.51 Module: Fractional Numbers

I. PURPOSE: To provide the student with the skills for fractional numbers.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Fractional Numbers: The student will verbalize that the numerator of a fraction represents the subset and the denominator represents the whole set.

B. Context:

1. Fractional Numbers: The student will be requested to verbalize the meaning of numerator and denominator.

C. Criteria:

1. Fractional Numbers: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:

Fractional Numbers
1.

B. Prerequisite Skills:

1. Fractional Numbers:
Sets and Subsets

C. Instructional Resources/Options/Activities:

1. Fractional Numbers:
MSM 4: 128, 158, 129
MSM 3: (t-188-189)
MSM 5: 195, 197, 225
MSM 6: 198,199 (t-248-249)

IV: SAMPLE TEST ITEMS:

1. Fractional Numbers:
"Tell me what the numerator and denominator means:"

$\frac{7}{8}$, $\frac{1}{4}$, $\frac{2}{3}$

2.0 Competency: Mathematics - Basic Operations

2.5 Module Cluster: Fractions

2.52 Module: Equivalent Fractions

I. PURPOSE: To provide the student with the skills for equivalent fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Equivalent Fractions: The student will find and record an equivalent fraction.

B. Context:

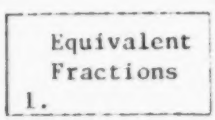
1. Equivalent Fractions: The student will be provided with a fraction.

C. Criteria:

1. Equivalent Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Equivalent Fractions:
Fractional Numbers
Multiplication of 2 n-digit numbers

C. Instructional Resources/Options/Activities:

1. Equivalent Fractions:
MSM 3: 168-169 (t-198-199)
MSM 4: 138-146
MSM 5: 208-214
MSM 6: 203-207 (t-252-256)

IV. SAMPLE TEST ITEMS:

1. Equivalent Fractions:

$\frac{1}{2}$ = ($\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, etc.)

$\frac{6}{9}$ = ($\frac{2}{3}$)

$\frac{8}{16}$ = ($\frac{4}{8}$, $\frac{2}{4}$, $\frac{1}{2}$)

2.0 Competency: Mathematics - Basic Operations

2.5 Module Cluster: Fractions

2.53 Module: Decimal Fractions

I. PURPOSE: To provide the student with the skills for decimal fractions.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Position of the Decimal Point: The student will show he knows that every whole number can be represented with a decimal point and a zero to the right of the number by placing the decimal point in the appropriate position.

2. Naming the Places: The student will verbalize the names of the decimal places to the right of the decimal point (tenths, hundreths, thousandths).

3. Decimal Fractions: The student will find and record an equivalent decimal fraction.

B. Context:

1. Position of the Decimal Point: The student will be provided with a whole number.

2. Naming the Places: The student will be provided with a decimal fraction with at least 3 digits to the right of the decimal point.

3. Decimal Fractions: The student will be provided with a fractional number.

C. Criteria:

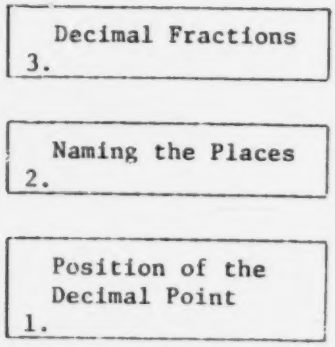
1. Position of the Decimal Point: Teacher Judgment

2. Naming the Places: Teacher Judgment

3. Decimal Fractions: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Position of the Decimal Point:
   Counting n-digit numbers

2. Naming the Places:
   Objective #1

3. Decimal Fractions:
   Objective #2
   Division with n-digit divisor and n-digit quotient

C. Instructional Resources/Options/Activities:

1. Position of the Decimal Point:
   MSM 5: (t-386), 330
   MSM 6: (t-356-357), 301

2. Naming the Places:
   MSM 5: (t-386), 332
   MSM 6: (t-356-357), 299, 300

3. Decimal Fractions:
   MSM 5: 330, 332-333
   MSM 6: 299, 300

IV. SAMPLE TEST ITEMS:

1. Position of the Decimal Point:

"Place the decimal point where it belongs in this whole number:"

$6 = \boxed{6.}$

$42 = \boxed{42.}$

2. Naming the Places:

"Name the places to the right of the decimal point:"

1.578

3. Decimal Fractions:

"Find an equivalent decimal fraction:"

$\frac{2}{3} = \boxed{}$ ex. .66

$\frac{1}{7} = \boxed{}$ ex. .142

2.0 Competency: Mathematics - Basic Operations

2.5 Module Cluster: Fractions

2.54 Module: Percent

I. PURPOSE: To provide the student with the skills for percent.

II. BEHAVIORAL OBJECTIVES:

A. Outcomes:

1. Meaning of Percent Sign: The student will verbalize that the symbol "%" is a numeral for the fraction $\frac{1}{100}$.

2. Percent: The student will write the equivalent percent.

B. Context:

1. Meaning of Percent Sign: The student will be requested to verbalize the meaning of the "%" sign.

2. Percent: The student will be provided with a decimal fraction.

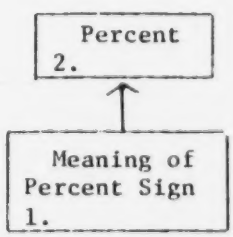
C. Criteria:

1. Meaning of Percent Sign: Teacher Judgment

2. Percent: 80% accuracy

III. INSTRUCTIONAL IMPLEMENTATION:

A. Sequence:



B. Prerequisite Skills:

1. Meaning of Percent Sign:
   Decimal Fractions

2. Percent:
   Objective #1

C. Instructional Resources/Options/Activities:

1. Meaning of the Percent Sign:
   MSM 6: (t-376-377), 318

2. Percent:
   MSM 6: 318-321 (t-376-379)

IV. SAMPLE TEST ITEMS:

1. Meaning of the Percent Sign:

"Tell me what the percent sign (%) means:"

100%, 33%

2. Percent:

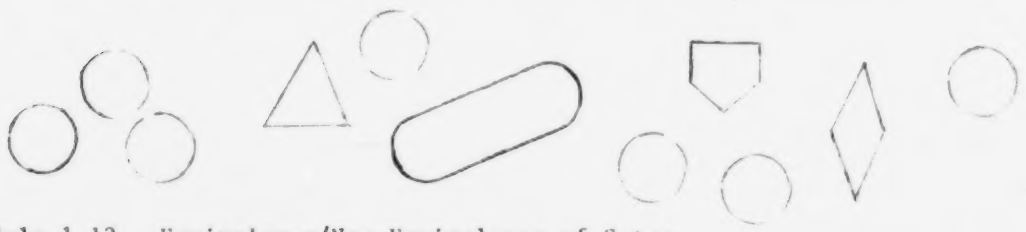
.3 = ____ (30%)
.26 = ____ (26%)
.70 = ____ (70%)
.259 = ____ (25.9%)

Module Cluster Competency Test
1.1
Sets

Module 1.11, Grouping Objects with Common Attributes:

"Put all the shapes which are the same (alike) in one group."
and/or (for those who are at the 2-d level)

"Circle all the shapes which are the same (alike)".

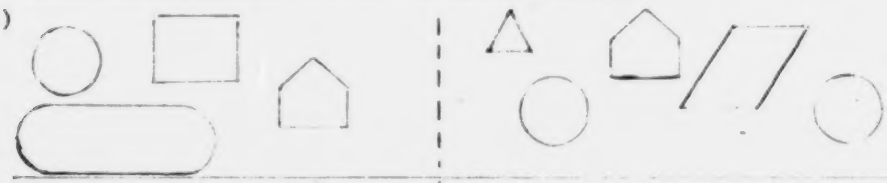


Module 1.12, Equivalence/Non-Equivalence of Sets:

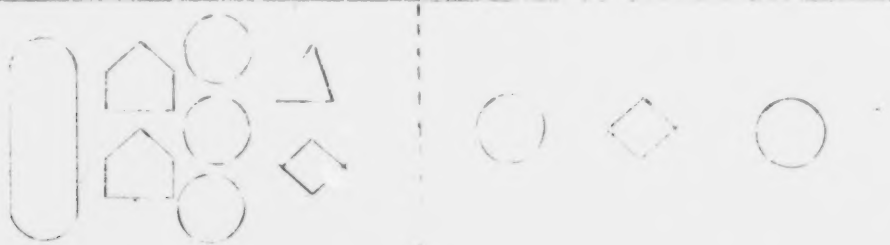
"Tell me, without touching these objects, whether this group is the 'same,' is 'less than,' or is 'more than' this other group."
and/or
(this may be done in 2-d as well).

a)

b)

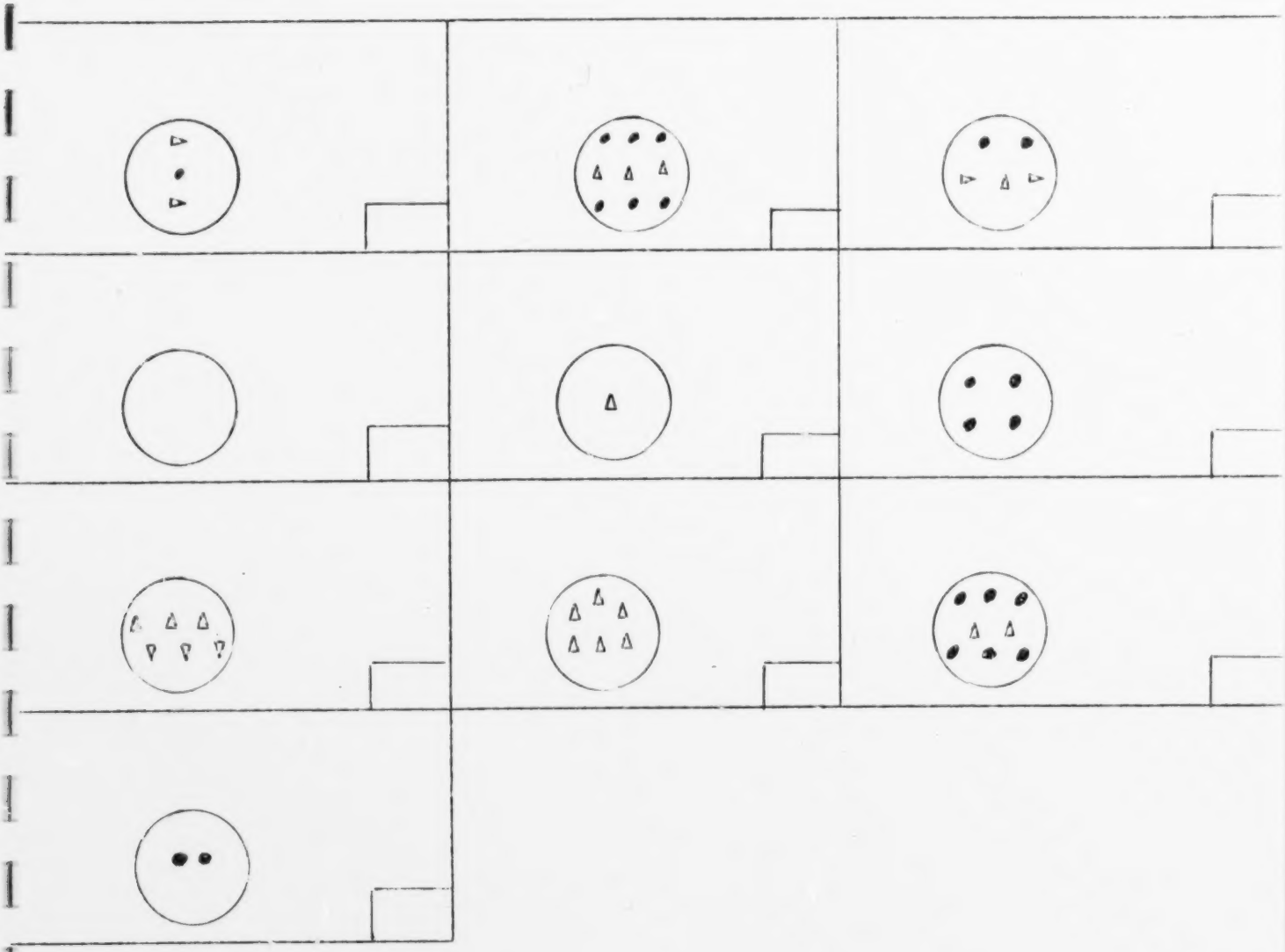


c)



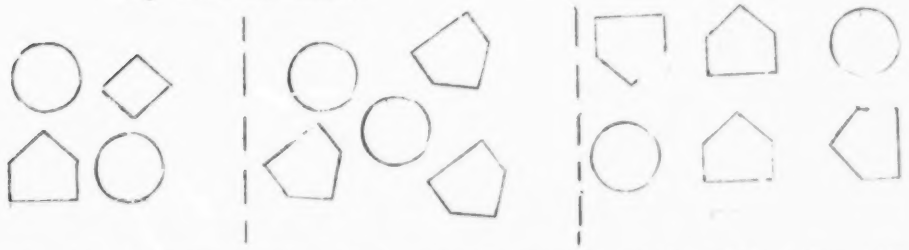
Module 1.13, Labeling Sets:

How many are in each set?
Write the numeral in each ☐ .



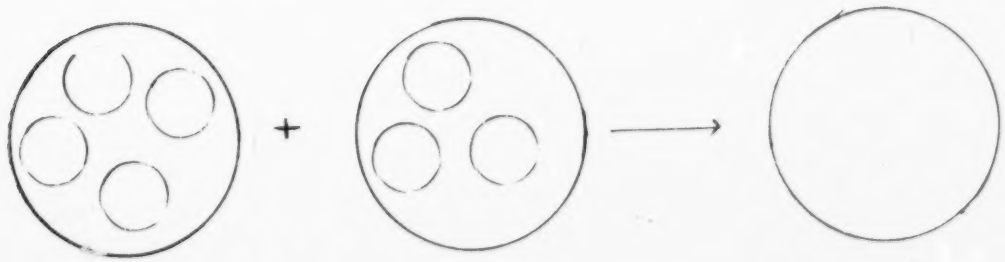
Module 1.14, Ordering Sets:

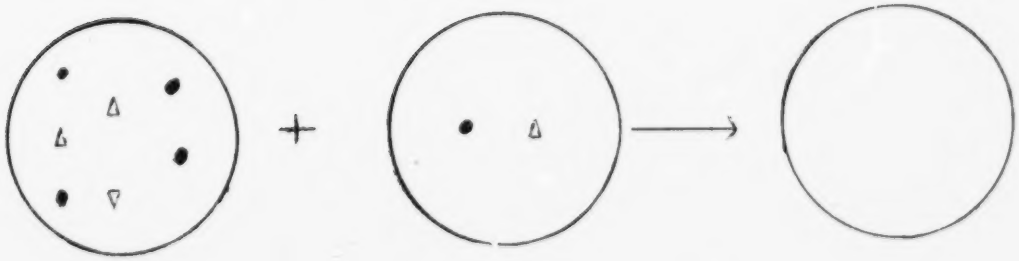
"Look at these groups of shapes. Point to and tell me the order that they come in. Which set of shapes comes 'before,' which comes 'between,' and which comes 'after?'" (3-d objects may also be used).



Module 1.15, Joining Sets: (This may be presented in either 2 or 3-d forms.

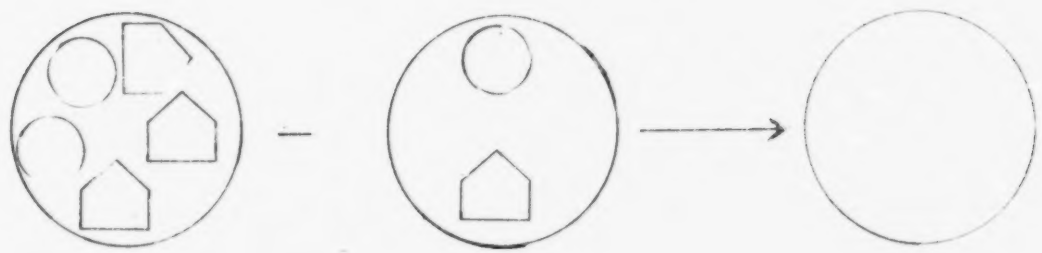
"Join these sets:"

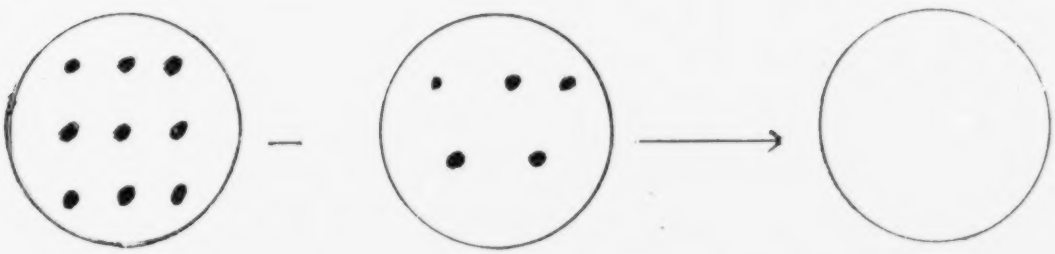




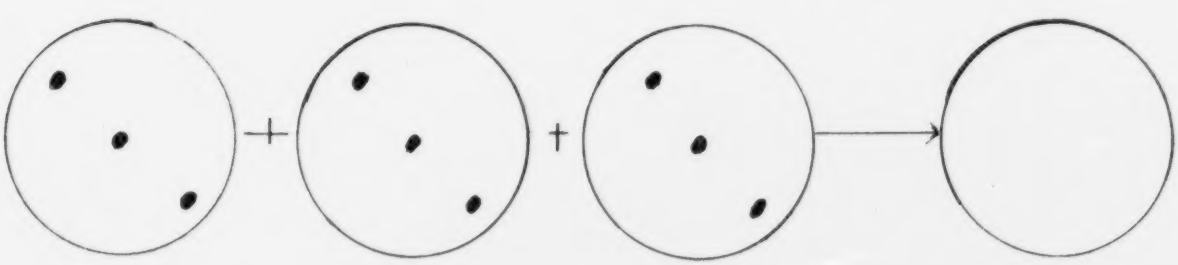
Module 1.16, Separating Sets:

"Separate these Sets:"





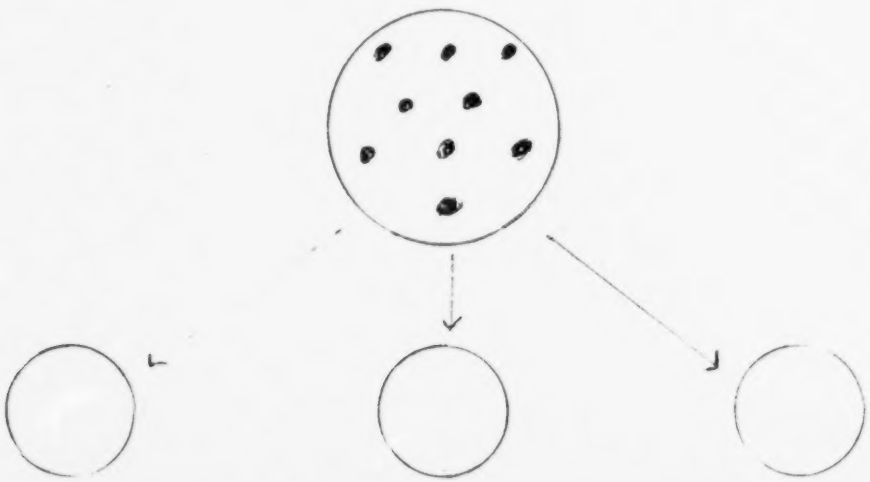
Module 1.17, Joining X, Equivalent Sets (X = 0,1,2, ... 9)



Module 1.18, Separating Equivalent Sets:

a) "See these cars." (Place 8 toy cars in a group.)
"Put the cars into 4 separate groups. Make each group look alike," (student should make 4 groups of 2).

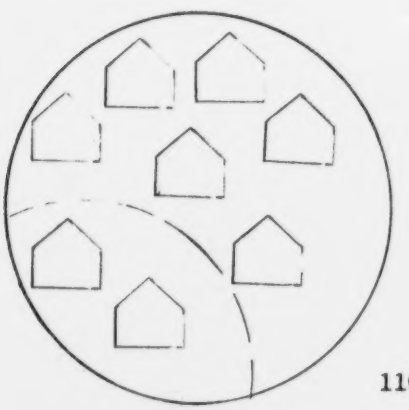
b) "Make this set into 3 separate sets. Make each set look alike."



Module 1.19, Sets and Subsets:
(Either 2- or 3-d objects may be used)

"Circle," or if using 3-d objects ("Cup your hands around) a subset."

"How many are in the first set?"
"How many are in the subset?"



Module Cluster Competency Test
1.2
Numeration

Module 1.21, Counting one-digit Numbers:
(The student may manipulate objects instead.
Please refer back to Sample test item.)

Examples
Draw lines to match the set with its numeral.

0

1

2

3

4

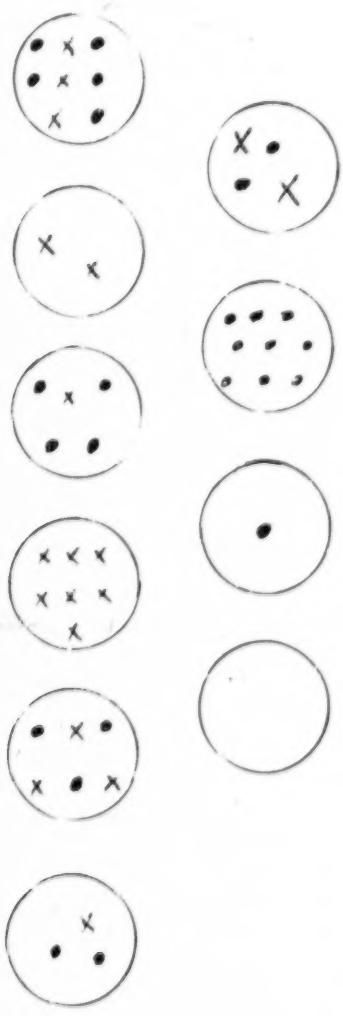
5

6

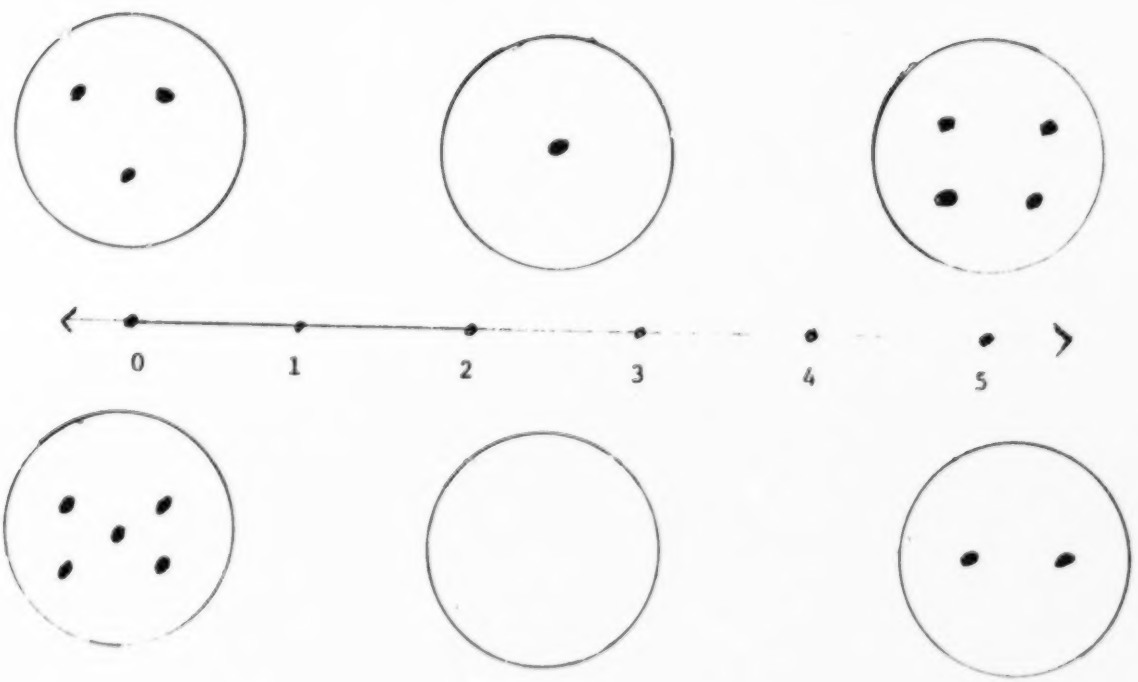
7

8

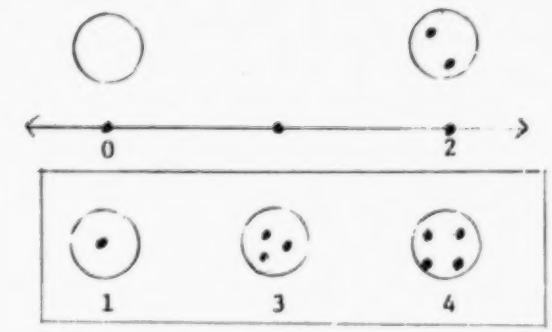
9

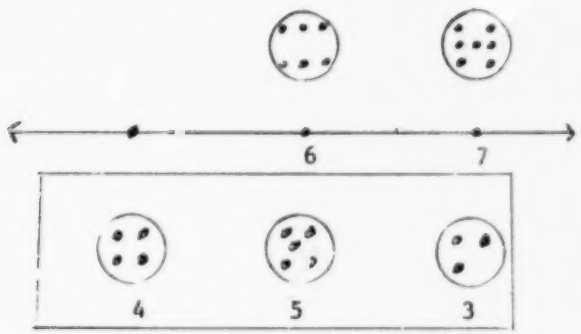


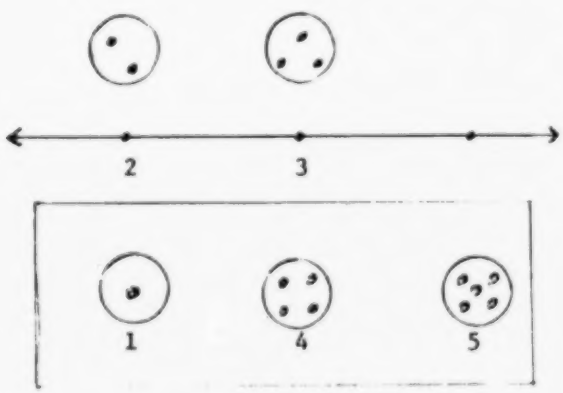
Match the numeral and the set:

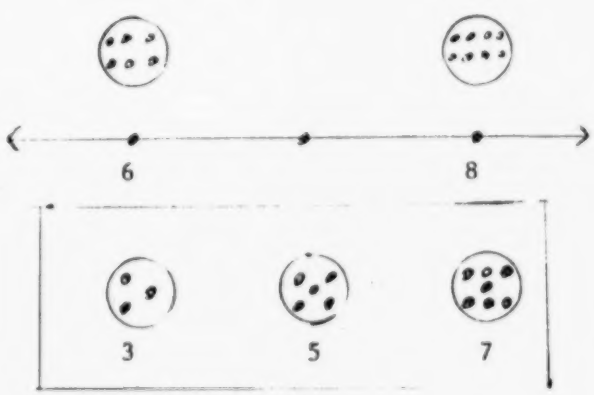


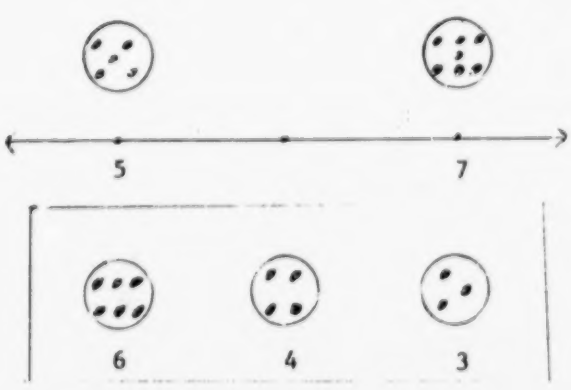
Find the Missing Number on the Number Line. Make the Number Line Complete:

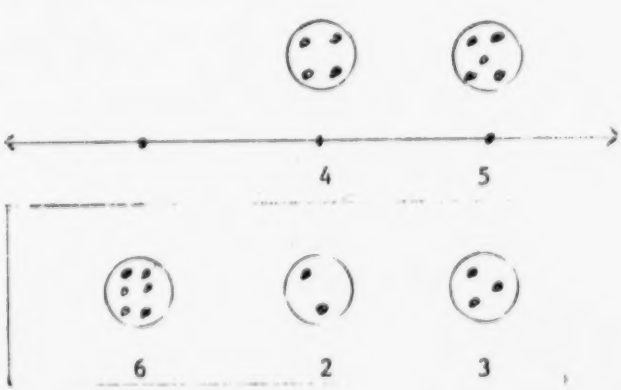












Module 1.22, Counting n-digit Numbers:

"Count out loud up to 150." "Write the numerals in order up to 99."

Module 1.23, Place Value:
Read Directions to Student:

"Write the numeral which has:"

a)	8	thousands	b)	85	thousands
	9	hundreds		4	hundreds
	5	tens		6	tens
	4	ones		3	ones

Answers

a) 8,954
b) 85,463

Module Cluster Competency Test
2.1
Addition

2.10, Equation Form:

"When you have a problem like this:

$$55 + 62 = 117$$

What does this mean?"(Point to equal sign.)

Answer: "The two sides of the equation are equivalent."

Module Cluster Competency Test
2.1
Addition

Module 2.11, Addition of 2, 1-digit Numbers:

a) $\begin{array}{r} 6 \\ +\ 2 \\ \hline \end{array}$ b) $\begin{array}{r} 5 \\ +\ 4 \\ \hline \end{array}$ c) $3 + 4 =$ ☐

Answers

a) 8
b) 9
c) 7

Module 2.12, Addition of n, 1-digit Numbers:

a) $\begin{array}{r} 2 \\ 5 \\ +\ 1 \\ \hline \end{array}$ b) $\begin{array}{r} 4 \\ 1 \\ +\ 0 \\ \hline \end{array}$ c) $2 + 2 + 1 + 4 =$ ☐

Answers

a) 8
b) 5
c) 9

Module 2.13, Addition of 2, n-digit Numbers Without Regrouping:

a) $\begin{array}{r} 321 \\ +\ 120 \\ \hline \end{array}$ b) $\begin{array}{r} 6{,}731 \\ +\ 3{,}258 \\ \hline \end{array}$

c) $1122 + 3110 =$ ☐

Answers

a) 441
b) 9,989
c) 4232

Module 2.14, Regrouping for Addition (Carrying).

a) $\begin{array}{r} 56 \\ +\ 34 \\ \hline \end{array}$ b) $\begin{array}{r} 84 \\ +\ 7 \\ \hline \end{array}$ c) $\begin{array}{r} 58 \\ +\ 42 \\ \hline \end{array}$

Answers

a) 90
b) 91
c) 100

Module 2.15, Addition of any 2, n-digit Numbers:

a) 765 + 344 b) 5,980 + 360 c) 8512 + 3776 = ☐

Answers

a) 1109
b) 6,340
c) 12,288

Module 2.16, Addition of n, n-digit Numbers:

a) 210 + 543 + 876 b) 2001 + 563 + 22 + 1 c) 1234 + 3660 + 894 + 2003

Answers

a) 1,629
b) 2,587
c) 7,791

Module 2.17, Addition & Subtraction of Fractions:

a) 6 3/4 + 3 1/4 = ☐

b) 5 1/2 - 2 1/2 = ☐

c) 5/8 + 3/8 = ☐

d) 9/5 - 4/5 = ☐

Answers

a) 10

b) 3

c) 1

d) 1

Module 2.18, Addition & Subtraction of Decimal Fractions:

a) 6.52 + 3.32 b) 3.31 - 2.20

c) $8.35 + 2.60 d) $5.43 - 3.32

Answers

a) 9.84

b) 1.11

c) $10.95

d) $ 2.11

Module Cluster Competency Test
2.2
Subtraction

Module 2.21, Subtracting 2, 1-digit Numbers:

a) $\begin{array}{r} 8 \\ -\ 6 \\ \hline \end{array}$ b) $\begin{array}{r} 5 \\ -\ 2 \\ \hline \end{array}$ c) $9 - 4 = \square$

Answers

a) 2
b) 3
c) 5

Module 2.22, Subtraction of a 1-digit Number from a 2-digit Number Without Regrouping:

a) $\begin{array}{r} 25 \\ -\ 4 \\ \hline \end{array}$ b) $\begin{array}{r} 78 \\ -\ 3 \\ \hline \end{array}$ c) $16 - 4 = \square$

Answers

a) 21
b) 75
c) 12

Module 2.23, Regrouping for Subtraction:

a) $\begin{array}{r} 55 \\ -\ 18 \\ \hline \end{array}$ b) $\begin{array}{r} 66 \\ -\ 59 \\ \hline \end{array}$ c) $20 - 9 = \square$

Answers

a) 37
b) 7
c) 11

Module 2.24, Subtraction of 2, n-digit Numbers:

a) $\begin{array}{r} 5967 \\ -\ 4358 \\ \hline \end{array}$ b) $\begin{array}{r} 9738 \\ -\ 1629 \\ \hline \end{array}$ c) $2345 - 2210 = \square$

Answers

a) 1609
b) 8109
c) 135

Module 2.25, Addition/Subtraction of Fractions:

a) $2\frac{7}{6}$ b) $\frac{8}{10} - \frac{4}{5} =$ ☐ c) $\frac{5}{8} - \frac{1}{8} =$ ☐

$- 1\frac{5}{6}$

Answers

a) $1\ \frac{2}{6}$ or $1\frac{1}{3}$

b) 0

c) $\frac{1}{2}$

Module 2.26, Addition/Subtraction of Decimal Fractions:

a) 7.63 b) 62.6 - 41.77 = ☐ c) 19.76 - 5.3 = ☐

- 2.52

Answers

a) 5.11
b) 20.83
c) 14.46

Module Cluster Competency Test
2.3
Multiplication

Module 2.31, Multiplication of 2, 1-digit Numbers:

a) 5 x 4 b) 8 x 7 c) 6 x 3 = ☐

Answers

a) 20
b) 56
c) 18

Module 2.32, Regrouping for Multiplication:

a) 19 x 4 b) 25 x 8 c) 49 x 6 = ☐

Answers

a) 76
b) 200
c) 294

Module 2.33, Multiplication of a 2-digit Number by a 1-digit Number Without Regrouping:

a) 22 x 4 b) 41 x 2 c) 13 x 3 = ☐

Answers

a) 88
b) 82
c) 39

Module 2.34, Multiplication of a 2-digit Number by a 1-digit Number:

a) 25 x 6 b) 44 x 8 c) 16 x 5 = ☐

Answers

a) 150
b) 352
c) 80

Module 2.35, Multiplication of 2, 2-digit Numbers:

a) 59 x 23 b) 85 x 44 c) 50 x 19 = ☐

Answers

a) 1,357
b) 3,740
c) 950

Module 2.36, Multiplication of 2, n-digit Numbers:

a) 4543 x 687 b) 19640 x 765 c) 567 x 432 = ☐

Answers

a) 3,121,041
b) 15,024,600
c) 244,944

Module 2.37, Multiplication of Fractions:

a) 3/4 x 6/5 = b) 5 2/3 x 3 1/3 = ☐

c) 6 x 3/4 =

Answers

a) 18/20 = 9/10
b) 170/9 = 18 8/9
c) 4 1/2

Module 2.38, Multiplication of Decimal Fractions:

a) 4.8 x 3 b) 3.9 x .4 c) 6.8 x 2.5 = ☐

Answers

a) 14.4
b) 1.56
c) 17.00

Module Cluster Competency Test
2.4
Division

Module 2.41, Division with a 1-digit Divisor and 1-digit Quotient:

a) $4\overline{)8}$ b) $3\overline{)9}$ c) $4 \div 2 =$ ☐

Answers

a) 2
b) 3
c) 2

Module 2.42, Remainders:

Which Number is the Remainder?
Place it in the Right Position.

a) $5\overline{)34}$ R.4* b) $4\overline{)55}$ R.3*

$\begin{array}{r} 6 \\ 5\overline{)34} \\ \underline{30} \\ 4 \end{array}$ $\begin{array}{r} 13 \\ 4\overline{)55} \\ \underline{4} \\ 15 \\ \underline{12} \\ 3 \end{array}$

Answers

a) 4
b) 3

* "Remainder" not for child's information

Module 2.43, Division with a 1-digit Divisor and a 2-digit Quotient:

a) $8\overline{)752}$ b) $5\overline{)355}$ c) $258 \div 6 =$ ☐

Answers

a) 94
b) 71
c) 43

Module 2.44, Division with a 2-digit Divisor and 1-digit Quotient:

a) $15\overline{)45}$ b) $12\overline{)72}$ c) $48 \div 16 =$ ☐

Answers

a) 3
b) 6
c) 3

Module 2.45, Estimating Quotients:

a) $4\overline{)384}$ b) $16\overline{)490}$

Answers

a) 96
b) 30 R. 10 or 30 5/8

Module 2.46, Division with a 2-digit Divisor and a 2-digit Quotient:

a) $16\overline{)824}$ b) $12\overline{)492}$ c) $467 \div 15 = \square$

Answers

a) 51 R.8 or 51 1/2
b) 41
c) 31 R.2 or 31 2/15

Module 2.47, Division with an n-digit Divisor and an n-digit Quotient:

a) $829\overline{)54365}$ b) $26\overline{)29072}$

Answers

a) 65 R.480
b) 1118 R.4

Module 2.48, Division of Fractions:

a) $\frac{1/3}{2/5}$ b) $1 \div 5/8 = \square$

c) $1\ 3/4 \div 5\ 1/4 = \square$

Answers

a) 5/6
b) 8/5
c) 28/84 = 1/3

Module 2.49, Division of Decimal Fractions:

a) $.52\overline{)684}$ b) $.35\overline{)5.842}$

c) $30.50 \div 5 = \square$

Answers

a) 13.15 (approxi.)
b) 16.7 (approxi.)
c) 61

Module Cluster Competency Test
2.5
Fractions

Module 2.51, Fractional Numbers:

"Tell me what the word, 'numerator' means."
"Tell me what 'denominator' means:"

$\frac{1}{2}$, $\frac{5}{4}$, $\frac{9}{10}$

Module 2.52, Equivalent Fractions:

a) $\frac{4}{16}$ = [ ]

b) $\frac{1}{5}$ = [ ]

c) $\frac{12}{24}$ = [ ]

Answers

a) $\frac{2}{8}$, $\frac{1}{4}$

b) $\frac{2}{10}$, $\frac{10}{50}$, $\frac{3}{15}$, $\frac{4}{20}$, $\frac{5}{25}$, etc.

c) $\frac{1}{2}$, $\frac{4}{8}$, $\frac{3}{6}$, $\frac{2}{4}$

Module 2.53, Decimal Fractions:

"Find an Equivalent Decimal Fraction for the Following Numbers:"

a) $\frac{4}{5}$ = [ ]

b) $\frac{3}{9}$ = [ ]

c) $\frac{2}{8}$ = [ ]

Answers

a) .8

b) .33

c) .25

Module 2.54, Percent:

"Convert these Decimal Fractions to Percent:"

a) .5 = [ ]

b) .73 = [ ]

c) .652 = [ ]

Answers

a) 50%

b) 73%

c) 65.2%